FE293

SIDE SCAN

Diagram No. 1213-4

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

DESCRIPTIVE REPORT

Type of Survey Side Scan Sonar

Field No. R/H-10-2-86 & R/H-10-3-86

Registery No. FE-293SS

LOCALITY

State New York

General Locality Long Island Sound

Sublocality Vicinities of Execution Rocks and Stepping Stones

1986

CHIEF OF PARTY
LCDR A.D. Anderson

LIBRARY & ARCHIVES

DATE February 1, 1988

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

FE293 SIDE SCAN

Area I
CHTS
· 12366
· 12367
12363
· 12364 sc E
Finset 11

TO SIGN OFF SEE "RECORD OF APPLICATION TO CHART"

NOAA FORM 77-28 (11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

FE-2935S

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

R/H 10-02-86 & R/H 10-03-86

State New York

General locality ~~Southern New England Coast~~ Long Island Sound

Locality ~~Western Long Isalnd Sound~~ Vicinities of Execution Rocks and Stepping Stones

Scale 1:10,000 Date of survey Sept. 30,1986 - Dec. 10,1986

Instructions dated April 17,1986 Project No. OPR-B660-RU-86

Vessel NOAA SHIP RUDE (~~9040~~ 9140); NOAA SHIP HECK (~~9041~~ 9041); ~~RU-3~~ (RUDE LAUNCH); ~~HE-1~~ 9141 (HECK LAUNCH)

Chief of party LCDR. ALAN D. ANDERSON

Surveyed by LCDR A. D. ANDERSON, LT. J.C.TALBOTT: Lt(jg) A. E. Francis, Lt(jg) T. A. Wolf

Soundings taken by echo sounder, ~~hand lead, pole~~ DSF-6000N, pneumatic depth gage, & wire drag

Graphic record scaled by A.E.F., T.A.W., K.F.S., W.M.

Graphic record checked by A.E.F., T.A.W., K.F.S., W.M.

Protracted by N/A Automated plot by Houston Instruments Plotter (field plots)

Verification by Evaluation and Analysis Group, Hydrographic Surveys Branch, AMC

Soundings in ~~fathoms~~ feet at ~~MLW~~ MLLW corrected for ~~predicted~~ smooth tides

REMARKS: all times in UTC

The following Appendices were removed and filed with the field records:

I, II, III, IV, V, VIII, IX, X

AWOIS/SURF MSM 6/88

KWW 10/14/93

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. G.P.O. 1972-769-565/519 REG.#6

FE-2935S

DESCRIPTIVE REPORT
PROJECT OPR-B660-RU-86
FIELD SHEETS R/H 10-02-86, R/H 10-03-86
SCALE 1:10,000
NOAA Ships RUDE & HECK
ALAN D. ANDERSON, LCDR, NOAA
Chief of Party

A) PROJECT AUTHORITY

This project was conducted in accordance with Hydrographic Project Instructions OPR-B660-RU-86, Southern New England Coast, Connecticut and New York. dated April 17, 1986. There were four changes to the project instructions, Change No. 1 dated April 24, 1986, Change No. 2 dated June 30, 1986, Change No. 3 dated July ~~21~~ 18, 1986, and Change No. 4 dated October 23, 1986.

The purpose of this survey was to verify or disprove certain reported submerged wrecks and obstructions, and to provide least depths over other selected wreck sites. Several of the wreck investigations are at the request of the Northeast Marine Pilots, Inc., of Newport, Rhode Island.

B) AREA SURVEYED

The area surveyed during this project was located along the Southern New England Coast within the Western Long Island Sound bounded on the south and west by the Throgs Neck Bridge (LAT 040° 48.0'N LONG 073° 48.0'W), and to the north and east by LAT 041° 00.0'N LONG 073° 32.5'W. The exact areas surveyed were described in the Automated Wreck and Obstruction Information System (AWOIS) listing as follows:

FIELD SHEET#	AWOIS#	LAT/LONG	SEARCH RADIUS
R/H 10-02-86	4386	040° 50' 00.00" N 073° 46' 18.00" W	75 meters
	4387	040° 50' 06.00" N 073° 46' 12.60" W	75 meters
	4388	040° 50' 06.60" N 073° 46' 15.00" W	75 meters
	4389	040° 50' 16.80" N 073° 45' 49.80" W	75 meters
	4416	040° 49' 01.50" N 073° 46' 55.00" W	75 meters

	4417	040° 49' 59.00" N 073° 46' 46.50" W	75 meters
	4418	040° 50' 12.00" N 073° 46' 40.00" W	75 meters
R/H 10-03-86	1729	040° 53' 24.00" N 073° 43' 30.00" W	750 meters
	1731	040° 53' 48.30" N 073° 43' 02.50" W	75 meters
	1733	040° 53' 58.00" N 073° 42' 05.00" W	75 meters
	4396	040° 52' 05.00" N 073° 40' 57.50" W	75 meters
	4397	040° 52' 37.50" N 073° 41' 48.60" W	75 meters
	4398	040° 52' 46.50" N 073° 42' 54.20" W	75 meters
	4400	040° 53' 18.00" N 073° 40' 36.00" W	500 meters

The inclusive dates of the survey were:

FIELD SHEET	BEGINNING DATE		COMPLETION DATE
R/H 10-02-86	Sept. 30, 1986 (273)	-	Dec. 10, 1986 (344)
R/H 10-03-86	Oct. 15, 1986 (288)	-	Dec. 10, 1986 (344)

C) SOUNDING VESSELS

Four sounding vessels were used to collect data during this survey. The vessel's numbers and the inclusive operational days of the year (DOY) follow:

EDP#	VESSEL	HULL#	DOY
9040	NOAA Ship RUDE	S-590	288-339
~~9041~~ 9140	NOAA Ship HECK	S-591	273-339
~~9020~~ 9141	HECK Survey Launch	HE- 3	315-330
~~9025~~ 9041	RUDE Survey Launch	RU- 3	315-330

The NOAA Ships RUDE & HECK are sister ships originally designed for wire drag survey operations. This project consisted of side scan sonar (SSS) operations, constant tension wire drag operations and, diver investigations. The SSS towfish was deployed from the RUDE & HECK using a hydraulic winch located on the centerline of the vessel, just aft of the exhaust stack of the ship. The SSS cable was lead through a block suspended from an A-frame at the stern of the ship. There were no unusual problems encountered with this system of SSS towfish deployment throughout the project.

HE-3 and RU-3, are twin 20 foot long SISU survey launches originally designed for wire drag testing operations. For this project, each launch was configured to allow it to perform Constant Tension Wire Drag operations in accordance with Hydrographic Survey Guideline No. 51. Throughout the project, this configuration worked well with no unusual problems identified. A diagram of this configuration can be found in APPENDIX XII, SUPPLEMENTAL INFORMATION. In addition, RU-3 was used as the primary diving platform for diver investigations.

D) SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO-SOUNDING

Both ships were equipped with a Raytheon DSF-6000N echo sounder. The RUDE was equipped with an EG&G model 260 Side Scan Sonar system including 100/500 KHz recorder and towfish, and cable, and the HECK was equipped with a Klein Hydroscan system consisting of a model 521T side scan sonar recorder, a 100 KHz towfish with a k-wing depressor and a tow cable. All diver least depth determinations were accomplished using a pneumofathometer. The serial numbers and dates of use were as follows:

INSTRUMENT	SERIAL NUMBER	DOY USED
9040 NOAA Ship RUDE		
Raytheon DSF 6000N	A116 N	288 - 339
EG&G Side Scan Sonar	10884	288 - 339
EG&G Towfish	0010823	288 - 339
Pneumofathometers	8607004N	288 - 339
	8606822N	288 - 339
9140 NOAA Ship HECK		
Raytheon DSF 6000N	B051 N	274 - 339
Klein Hydroscan	088	274 - 339
Klein Towfish	349 M	274 - 339

The general depths in which soundings were taken were from 20 to 120 feet. It is presumed by the hydrographer that the sounding data will be used only as reconnaissance data except where extensive development was done east of Execution Rocks to delineate shoals and other dangers to navigation. No hydrographic data was digitized during on-line data acquisition or off-line processing. Selected soundings were hand plotted on the rough plots for prior survey and chart comparisons. Since no hydrographic data was digitized and was not computer plotted, it was considered as reconnaissance hydrography. Only the least depths and shoalest soundings on features were smooth plotted.

Data was collected for the determination of speed of sound through water to derive velocity corrections using a MARTEK Mark VII TDC, model number 167, serial number 130, calibrated 14 November, 1985. A post deployment calibration can be obtained from the AMC EEB. Data was collected on JD's 275, 301, and 343. Velocity corrections from this data were computed on the IBM PC using PC530.BAS version 9/15/86. Velocity corrections were only applied to echo sounder data that supplied least depths for a specific item. Since the water temperature and conductivity were changing rapidly during this project, with resultant velocity correctors being as much as 3.0 feet at the beginning of the project and almost no corrector at the end of the project, data was corrected by using the velocity cast closest in date to the date that echo sounder data was gathered. These items are described further in Appendix XII. The velocity cast data is contained in Appendix IV. It should be noted that no surface Martek-independent salinity measurements were taken during the velocity casts. One line in program PC530.BAS was modified by LTJG Wolf to account for this omission. This data omission should not seriously affect the quality of the data gathered.

Settlement and Squat correctors for the ships and both launches were determined on 12 June, 1986 at the Truman Annex, Key West, Florida. A copy of the results is in Appendix IV of this report. No settlement and squat correctors were applied to any data collected during this project as most least depths obtained by echo sounders were when the ship was DIW or at 200 RPM's where the corrector is zero.

A draft/instrument error corrector was developed for each ship by using ships plans and stationary measurements and leadline comparisons. The ships plans were used to measure the distance from the transducer in use to the main deck. Using this as a constant, measurements were taken from the main deck to the water level using a weighted steel tape. Subtracting the second from the first, a corrector of 6.8 feet was obtained for both ships. Finally, a leadline comparison was performed and the results showed the draft to be 6.8 feet with no instrument error for the DSF-6000N echo sounders. EDO tests for the DSF-6000N were conducted daily on both high and low frequencies with no instrument error found.

There were no readily available objects in the survey area from which to perform side scan sonar confidence checks. However, the quality of the bottom returns from both side scan units lent confidence to the functioning of the systems. Targets could have been established to facilitate conducting system confidence checks. See section 4.m. of the Evaluation Report.

Survey records were scanned by survey department personnel and Commissioned Officers and were checked by the Field Operations Officer and Commanding Officer. Side scan sonar targets were listed in the newly approved SSS Target List Form. Contacts requiring further development and the results of these developments are explained in the narrative for each item in Appendix XII. All contacts not investigated further are so labeled. See section 4. of the Evaluation Report.

Predicted tide data was applied to the pneumofathometer depth readings, to the constant tension wire drag data, and to echo sounder least depths. No tide gages were installed during the project. Smooth tides were requested from Chief, Tides and Water Levels Branch (N/OMA12) in a letter dated 12 December, 1986. A copy of this letter is in Appendix II. Smooth tides were applied during survey processing at AMC.

The pneumofathometers used during this project were a 0-70 scale (S/N 8607004N) and 0-140 scale (S/N 8606822N). Both pneumofathometers were calibrated as per Hydrographic Survey Guideline #47 on JD's 297 and 322 (0-70 scale), and JD 339 (0-140 scale). The data from these calibrations can be found in Appendix XII.

E) HYDROGRAPHIC SHEETS

All field sheets were made aboard the NOAA ship RUDE using the PDP-11/34 computer. Trackline data is presented on one or two sheets for each AWOIS item. The number of sheets was determined by the amount of coverage required to resolve the item, the scale of the survey, and the closeness of items to one another. When two sheets were used, R1 arcs are represented on one sheet and R2 arcs on the other, or tracklines are on one sheet and echo sounder depths are on the other. This was done to improve legibility. On the final field sheets, all overlapping lines and unnecessary development lines have been removed. All field records and tapes were forwarded to the Atlantic Marine Center for verification and smooth plotting. The sheets and the AWOIS items on the sheets are listed in Section B of this report. The final field sheets are plotted at a scale of 1:10,000 and contain D.P.'s on located contacts with associated least depths, search areas for items not located and disproved, and buoy D.P.'s.

F) CONTROL STATIONS

Throughout the entire survey existing control was used. Two new horizontal control stations were established by ships personnel. (Assumed to be the two eccentric stations.) The remainder of the control was established and fixed aids to navigation were positioned by MOA2222 under Project Instructions HC-8603 dated 23 July, 1986. All data from MOA2222 was submitted to N/CG164 on 15 October, 1986. The stations used and their positions follow:

STATION NUMBER	STATION NAME	
001	KINGSPOINT 1932	
	Lat:	40° 50' 04.160" N
	Lon:	073° 45" 26.159" W
002	MERCHANT PK	
	Lat:	40° 48' 48.272" N
	Lon:	073° 45' 56.797" W

003 STEPPING STONES LH 1882
Lat: 40° 49' 27.221" N ✓
Lon: 073° 46' 30.781" W ✓

004 THROGS NECK LIGHT
Lat: 40° 48' 16.156" N ✓
Lon: 073° 47' 28.025" W ✓

005 EXECUTION ROCKS LIGHTHOUSE
Lat: 40° 52' 40.632" N ✓
Lon: 073° 44' 17.259" W ✓

006 LARCHMONT HARBOR LT
Lat: 40° 55' 04.718" N ✓
Lon: 073° 43' 53.951" W ✓

010 KALPAKJIAN
Lat: 40° 54' 09.092" N ✓
Lon: 073° 38' 00.555" W ✓

011 HART IS PRISON PWR PLT CHIM
Lat: 40° 51' 03.322" N ✓
Lon: 073° 46' 10.678" W ✓

012 HIGH IS RAD STA WCBS WNBC MAST
Lat: 40° 51' 34.974" N ✓
Lon: 073° 47' 09.083" W ✓

014 EXECUTION ROCKS LIGHTHOUSE ECC
Lat: 40° 52' 40.670" N field position - Less than 3rd order, class I
Lon: 073° 44' 17.176" W

015 KINGS POINT USMMA FLAGPOLE
Lat: 40° 48' 43.183" N not verified
Lon: 073° 45' 43.727" W

016 MARITINE COLLEGE TANK
Lat: 40° 48' 31.075" N ✓
Lon: 073° 47' 58.560" W ✓

017 MAMARONECK WINGED FOOT GC TANK
Lat: 40° 57' 40.573" N not verified
Lon: 073° 45' 01.193" W

018 THROGS NECK LIGHT ECC
Lat: 40° 48' 16.184" N field position - Less than 3rd order, class I
Lon: 073° 47' 27.979" W

All stations are of Third-order, Class I control accuracy, or better. The station positions are based upon the North American Datum of 1927. Because of the extremely short distances, the measurements for the eccentrics did not conform strictly to Third Order methods. However, the measurements were sufficiently accurate to produce positions of the accuracy normally expected from using Third Order

The eccentric stations are undescribed, non recoverable stations of less than third order, class I accuracy.

methods at greater distances. Calculations for eccentric positions are included in the electronic ~~corrector~~ control report for this project.

G) HYDROGRAPHIC POSITION CONTROL

Hydrographic position control for the entire survey was a range-range system using Mini-ranger Falcon 484 electronic positioning equipment. For survey sheet R/H 10-2-86 control shore stations were set up at KINGSPOINT 1932, MERCHANT PK, and THROGS NECK LIGHT. At the beginning of the project (JD 273-281) system checks were performed by the HECK using the Range/Azimuth method with a HP-3808A EDM set up on MERCHANT PK, initializing on STEPPING STONES LH 1882. The remaining system checks were performed by running a range of STEPPING STONES LH 1882 and HART IS PRISON PWR CHIM with a right angle to KINGS POINT USMMA FLAGPOLE and a left critical check angle to MARITINE COLLEGE TANK. A single system check was run by RU-3 on JD 329 using the range of STEPPING STONES LIGHTHOUSE and KINGS POINT USMMA FLAGPOLE, with a left angle to HART IS PRISON PWR CHIM and a right angle to MARITINE COLLEGE TANK. For survey sheet R/H 10-3-86 control stations were set up at EXECUTION ROCKS LIGHTHOUSE ECC, LARCHMONT HARBOR LT, THROGS NECK LIGHT, and KALPAKJIAN. System checks were performed by running the range of EXECUTION ROCKS LIGHTHOUSE and HIGH IS RAD STA WCBS WNBC MAST with a right angle to LARCHMONT HARBOR LT and a critical system check angle to MAMARONECK WINGED FOOT GC TANK.

Vessel positioning was accomplished using the Mini-ranger Falcon 484 positioning system. The following equipment was used by the survey vessels for the listed dates:

VESNO	RT	RPU	DATES IN USE
9040	F3410	E0140	DOY 288 - 308
	F3411	E0149	DOY 311 - 339
~~9041~~ 9140	F3409	F0241	DOY 272 - 308
	F3410	E0140	DOY 339 - 339
~~9020~~ 9141	F3410	E0140	DOY 315 - 316
	G3646	E0141	DOY 329 - 330
~~9025~~ 9041	F3409	F0241	DOY 315 - 329
	E2965	D0004	DOY 329 - 330

The following is a list of remote units installed on each Horizontal Control Station:

STATION #	DATES IN USE (DOY)	SERIAL # (CODE)
001	274 - 329	F3244 (1)
002	274 - 316	F3242 (2)
	329 - 329	F3222 (5)

004	294 - 316	F3222 (5)
006	288 - 308	F3217 (6)
	311 - 311	F3241 (3)
	321 - 339	F3217 (6)
010	322 - 339	F3222 (5)
014	288 - 308	F3241 (3)
	311 - 311	F3217 (6)
	321 - 339	F3241 (3)

Four baseline calibrations were performed during this survey. All baseline calibrations took place on Western Long Island Sound between stations MERCHANT PK and STEPPING STONES LIGHTHOUSE. A baseline distance was measured to be 1432.9 meters. The following is a list of dates and serial numbers of RPU's and RT's calibrated:

RPU	RT	REMOTES (CODE)
26 September 1986		
E0140	F341	F3244 (1) F3242 (2) F3241 (3) F3237 (4) F3222 (5) F3217 (6)
F0241	F3409	same as above
E0149	F3411	same as above
05 November 1986		
E0140	F3410	F3244 (1) F3242 (2) F3241 (3) F3222 (5) F3217 (6)
F0241	F3409	same as above
E0149	F3411	same as above
14 November 1986		
E0141	G3646	F3244 (1) F3242 (2) F3241 (3) G3474 (4) F3222 (5) F3217 (6)

D0004	E2965	same as above

9 December 1986

D0004	E2965	F3244 (1) F3242 (2) F3241 (3) F3222 (5) F3217 (6)
F0241	F3409	same as above
E0141	G3646	same as above
E0140	F3410	same as above

On two occasions the Falcon 484 equipment failed. Remote unit F3237 (4) was sent back to the factory for repairs. As no work was performed using this remote, no data was affected. On JD 329 the RT/RPU combination F3409/F0241 on RU-3 failed mid-day and was replaced. The unit was returned to AMC for repairs and was immediately sent back to the field. The unit was baseline calibrated on 9 December, 1986 with good agreement with prior baselines. The only problem with the unit was a faulty on/off switch. The combination E0149/F3411 failed during final calibration and no closing check was possible. The data collected prior to this is considered adequate based on daily system checks and critical system checks.

The daily system checks were computed by hand for the range-cutoff calibration and by using a HP 9815 computer for the critical sextant checks. All daily system checks were within accuracy tolerances for a survey of this scale.

It is requested that the opening baseline calibration data for each RPU/RT combination be applied to the raw position data collected by that combination during the final processing by the Marine Center. All critical positional data was collected during the time period closest to the opening baseline. The remaining baseline calibrations collected for each combination showed that the units were functioning within limits for a survey of this scale. The additional baseline calibrations served as a check for the systems and should not be applied to collected data. The subsequent baseline calibrations showed that the units varied only about one meter except for combination F0241/F3409 which varied as much as 4 meters. No critical data was collected by this combination after the second baseline calibration. The positions plotted on the rough plots and final field sheets do include whatever was the most recent baseline correctors established prior to survey operations, not necessarily the first baseline.

Do not concur - the most recent baseline calibration were applied to the survey data.

The ships experienced normal problems with null zones associated with the mini-ranger positioning system. The ships either moved to another work area until a change in tide moved the null zone, or the missed positioning data was D.R.'d.

H) SHORELINE

Shoreline does not apply.

I) CROSSLINES

Cross lines do not apply.

J) JUNCTIONS

Junctions do not apply.

K) COMPARISON WITH PRIOR SURVEYS- See the Evaluation Report.

Due to the limitations of shipboard equipment, no automated plotting of hydrographic data was possible. Hydrographic data collected during this survey is meant to be of reconnaissance value only except where extensive DSF development was performed in the area around Stepping Stones Lighthouse. Selected soundings were hand plotted on the rough plot using the final field positions. The only corrections added to the echo soundings were the draft corrector, predicted tides, and velocity of sound.

The AWOIS item descriptions in Appendix XII contain specific information concerning the comparison with prior surveys.

L) COMPARISON WITH THE CHART – See also the Evaluation Report.

Charted soundings were transferred onto the boat sheets before any sounding data was obtained. All charted features and soundings came from the largest scale chart of the area. This procedure allowed for direct chart comparison while the vessels were conducting operations. The actual chart or charts used in the comparison are listed in the individual item report located in Appendix XII.

No chart markups were supplied for this survey, therefore the exact source of the charted data is unknown. Comparing the charted data with the prior surveys, it was apparent that the prior surveys were the source of most of the charted data. This being the case, the discussions of the individual items and their associated hydrography will be primarily contained in the Comparison with Prior Surveys.

One Local Notice to Mariners report was submitted on 9 December, 1986 for AWOIS 4396. A copy of the letter is in Appendix XII.

M) ADEQUACY

Data collected and processed during this survey is in accordance with Charting and Geodetic Services guidelines and procedures. All charting recommendations discussed in Appendix XII, are adequate to supersede prior information. See the Evaluation Report.

N) AIDS TO NAVIGATION

Fourteen floating aids to navigation were positioned within the boundaries of the two sheets worked on during this project. The following is a listing of the buoys and their positions obtained during work on this project. All buoys were in good agreement with current charted positions. — These floating aids to navigation were not verified. The field rejected this data. The field plots of these buoys show good agreement with current charted information. See also section 7.b. of the Evaluation Report.

BUOY	OBTAINED POSITION	AGREEMENT	SHEET
BT	040° 50' 07.25" N 073° 47' 17.70" W	GOOD	R/H 10-02-86
R N #4	040° 50' 06.47" N 073° 47' 34.52" W	GOOD	
#2	040° 49' 57.52" N 073° 47' 22.96" W	GOOD	
#46A	040° 49' 15.44" N 073° 47' 14.64" W	GOOD	
R N #4	040° 49' 00.15" N 073° 46' 04.21" W	GOOD	
#2	040° 49' 05.99" N 073° 45' 52.90" W	GOOD	
#29	040° 50' 30.14" N 073° 45' 21.13" W	GOOD	
WR6	040° 50' 37.67" N 073° 47' 45.62" W	GOOD	
R 6 BELL	040° 51' 38.41" N 073° 40' 27.28" W	GOOD	R/H 10-03-86
R N #4	040° 52' 12.68" N 073° 42' 03.25" W	GOOD	
R N #2	040° 52' 23.88" N 073° 42' 31.08" W	GOOD	
Fl G #23 GONG	040° 52' 42.18" N 073° 43' 12.18" W	GOOD	
G C #1	040° 53' 27.04" N 073° 44' 06.66" W	GOOD	
R N #44	040° 52' 46.12" N 073° 44' 08.95" W	GOOD	

O) STATISTICS

STATISTICS OF MILES RUN

VESNO: 9040 RUDE (SEE NOTE 1)

SHEET NUMBER	LINEAR MILES RUN (NM)	SQUARE MILES RUN	TOTAL POSITION No.s
R/H 10-02-86	2.21	.18	111
R/H 10-03-86	43.58	2.72	767

VESNO: 9140 (HECK) (SEE NOTE 2)

SHEET NUMBER	LINEAR MILES RUN (NM)	SQUARE MILES RUN	TOTAL POSITION No.s
R/H 10-02-86	44.6	1.88	720
R/H 10-03-86	11.0	0.15	139

NOTE 1: All work on R/H 10-02-86 by the RUDE was constant tension wire drag

All work on R/H 10-03-86 by the RUDE was side scan except for DOY 330 which was constant tension wire drag

NOTE 2: All work on R/H 10-02-86 by the HECK consisted of side scan, DSF development and constant tension wire drag.

All work on R/H 10-03-86 by the HECK was exclusively constant tension wire drag and DP's on aids to navigation.

** For complete accounting of positions, refer to ABSTRACT OF POSITIONS, APPENDIX VII **

P) MISCELLANEOUS

Section 4.1.1.1. of the project instructions directed that Third Order, Class 1 positions be determined for the following aids to navigation and, that their positions be transmitted to the U.S. Coast Guard, Third District by the quickest available means. This information was transmitted to the Commander, U.S. Coast Guard, Third District via letter on September 27, 1986.(See Appendix XII, Supplemental Information)

NAVIGATIONAL AID

Throgs Neck Light
Great Captain Island Light
Port Chester Light
Port Chester Harbor Channel Light

Information provided by the U.S. EPA prior to the project beginning indicated that diving operations should not be conducted from the vicinity of the Throgs Neck Bridge northeast to an area around Execution Rocks Light. The primary reason for this was the high levels of pollutants, specifically, PCP's. The command and ships divemaster concurred with this recommendation. As a result, several different methods of surveying were necessary to locate, identify, position and/ or disprove AWOIS items falling within the sheet limits of R/H 10-02-86. Side scan sonar, DSF echo sounder developments and, constant tension wire drag were all utilized.- *See section 9. of the Evaluation Report.*

Side scan sonar operations and DSF developments were conducted from the NOAA Ships RUDE & HECK. Constant tension wire drag and, diving operations were conducted from the SISU survey launches.

Constant tension wire drag operations were restricted by the weather conditions and state of the currents. Operations could not be conducted in winds over 15-20 knots and seas greater that 1-2 feet. In addition, high current velocity produced extreme lift in the groundwire. Operations were generally run on good weather days on or near periods of slack current when possible.

On sheet R/H 10-02-86, DSF echo sounder developments were utilized to position and to determine the least depth of the AWOIS item under investigation. Constant tension wire drags were then run over the suspect item to verify that the shoalest sounding had been pinpointed. This was accomplished by conducting the drags so that a clearance depth was recorded and a subsequent hang depth was also recorded. Without the use of divers in this area, the constant tension wire drag was the best method to use for verifying that no pinnacle shape obstructions were overlooked. The constant tension wire drag method currently used is an easy method of determining clearance but, it does not provide a good method of positioning the obstruction once it is hung. Therefore, on the final recommendations of items investigated by constant tension wire drag operations, the final position recommended for charting purposes is taken from the DSF development. Only the deepest clearance and the hang strips were plotted on an overlay. *See the smooth plots included with the Evaluation Report.*

Currents were calculated throughout the project area, whenever diving operations were scheduled. Predicted current conditions compared favorably with those observed. No anomalous currents were observed throughout the project area.

Although no significant differences were seen in predicted current calibrations, differences were noted in the predicted tides versus the real tides observed at the Willets Point tide station. It is suspected that when real tides are applied, a noticeable difference may be apparent.

LORAN-C rates recorded at various AWOIS item sites are recorded in the appropriate sounding volume and are noted in the AWOIS writups and in Appendix XII.

A user evaluation was conducted during operations on this project to solicit the comments of NOAA product users concerning the existing chart layout, scale, format color, and to also inform the public of NOAA's many products and services. Contacts were recreational oriented. The following users were contacted: See also section 4.y. of the Evaluation Report.

USER	ADDRESS
Cow Bay Marine Service (Edward J. Steadman)	78 Shore Rd. Port Washington, N.Y. 11050
Tom's Point Marina (Tony Luccaro)	Sagamore Hill Drive Port Washington, N.Y. 11050

The following general comments were made:

1) In general users were pleased with the format, size and color of charts.

2) It was mentioned that during the "busy" time of the year, that charts were often slow in being received once an order has been placed. For this reason orders are often made in the slow season to account for the needs of the busy season.

3) It was otherwise felt by all that the existing suite of charts of the area are adequate for the needs of the boaters in the area.

Q) RECOMMENDATIONS

Individual item recommendations are included in AWOIS descriptions (See Appendix XII). See also the Evaluation Report.

R) AUTOMATED DATA PROCESSING

PROGRAM NAME

GULP - Grid, Control Station, Lattice Plot
LEDIT - Lattice File Editor
PARC - Parameter File Editor
PEDIT - Position File Editor
POLIST - Position File Listing
@PRTD - Predicted Tide Corrector Generator
SEDIT - Station File Editor
@SMDUMP - Side Scan Sonar and Launch Drag Data Dump
SSCOM - Side Scan Sonar Data Position Computation
SSPLOT - Side Scan Sonar Data Plot
SSPOOL - Side Scan Sonar Position File Generator
STACR - Station and Lattice File Initialization

S) REFERRAL TO REPORTS

The following reports have been sent to the Atlantic Marine Center. Please refer to them for any questions pertaining to their contents.

REPORT	DATE SUBMITTED
ELECTRONIC CONTROL	17 December, 1986

APPROVAL SHEET

OPR-B660-RU-86

Field operations contributing to the accomplishment of this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and field sheets have been closely reviewed and are considered complete and adequate to supersede prior information.

Alan D. Anderson

Alan D. Anderson, LCDR, NOAA
Operational Commanding Officer
NOAA Ships RUDE & HECK

APPENDIX VI
LIST OF STATIONS

Station List

OPR-B660-RU/HE-86

STATION	STATION NAME / LAT-LONG	ELEV	CARTO CODE
001	KINGSPOINT 1932 Lat: 40° 50' 04.160" N Lon: 073° 45" 26.159" W	0.0 M	250
002	MERCHANT PK Lat: 40° 48' 48.272" N Lon: 073° 45' 56.797" W	3.90 M	250 4
003	STEPPING STONES LH 1882 Lat: 40° 49' 27.221" N Lon: 073° 46' 30.781" W		139
004	THROGS NECK LIGHT Lat: 40° 48' 16.156" N Lon: 073° 47' 28.025" W	18.51 M	250
005	EXECUTION ROCKS LIGHTHOUSE Lat: 40° 52' 40.632" N Lon: 073° 44' 17.259" W		139
006	LARCHMONT HARBOR LT Lat: 40° 55' 04.718" N Lon: 073° 43' 53.951" W	8.90 M	250/~~139~~
010	KALPAKJIAN Lat: 40° 54' 09.092" N Lon: 073° 38' 00.555" W	5.40 M	250
011	HART IS PRISON PWR PLT CHIM Lat: 40° 51' 03.322" N Lon: 073° 46' 10.678" W		139
012	HIGH IS RAD STA WCBS WNBC MAST Lat: 40° 51' 34.974" N Lon: 073° 47' 09.083" W		139
014	EXECUTION ROCKS LIGHTHOUSE ECC Lat: 40° 52' 40.670" N field position - less than 3rd order, class I Lon: 073° 44' 17.176" W	13.0 M	250 4
015	KINGS POINT USMMA FLAGPOLE Lat: 40° 48' 43.183" N Not verified Lon: 073° 45' 43.727" W		139

016	MARITINE COLLEGE TANK Lat: 40° 48' 31.075" N Lon: 073° 47' 58.560" W	139
017	MARONECK WINGED FOOT GC TANK Lat: 40° 57' 40.573" N Lon: 073° 45' 01.193" W	139
018	THROGS NECK LIGHT ECC Lat: 40° 48' 16.184" N Lon: 073° 47' 27.979" W	243

Not verified

field position - Less than 3rd order, class I

All stations are of Third-order, Class I control accuracy, or better. The station positions are based upon the North American Datum of 1927. (See appendix A for calculations of eccentrics).

Due to the extremely short distances involved, the measurements for the eccentrics did not conform strictly to third order methods. The measurements were accurate enough to produce positions of accuracy normally expected from using third order methods at greater distances.

The eccentric stations are undescribed, nonrecoverable stations of less than third order, Class I accuracy.

APPENDIX VII

~~ABSTRACT OF POSITIONS~~ Removed & filed with the field records.

COVERAGE ABSTRACTS

SSS CONTACT LISTS

MANUAL VS INTACT COMPARISONS

R/H 10-2-86 (a)

004 274

9140
9044 Hock

SONAR COVERAGE ABSTRACT

OPR- B660-86 ITEM# 4417

SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	MAXIMUM TRACK SPACING (M)	COVERAGE ANALYSIS	
0070-0073	100	80	8.0	0074-0079	100	100	11.0	61	200%	1775
0074-0079	↓	100	11.0	0080-0085	↓	80	8.0	72	200%	1825
0080-0085		80	8.0	0086-0091		60	6.0	58	200%	1875
0086-0091		60	6.0	0092-0095		100	12.0	83	200%	1925
0092-0095	↓	100	12.0		↓				200%	1975

Aof 10-17

R/H 10-02-86 (B)
D04-274

9140
~~9044~~ Heck

SONAR COVERAGE ABSTRACT

OPR- B660-86 ITEM# 4418

SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	MAXIMUM TRACK SPACING (M)	COVERAGE ANALYSIS	ARC
0096-0101	100	70	7.0	0102-0108	100	80	8.0	80	200%	2675
0102-0108	↓	80	8.0	0109-0114	↓	70	7.0	68	200%	2725
0109-0114		70	7.0	0115-0123		50	5.0	87	100%	2775
0115-0123		50	5.0	0124-0128		80	8.0	73	100%	2825
0124-0128	↓	80	8.0		↓				100%	2875

KFS
ACF 10-17

DOY 294

MANUAL VS INTAC CALCULATIONS
FIELD SHEET # R/H 10-02-86

OPR-B660-RU/HE/86

AWOIS # 4417

	EVENT #	LAYBACK	FISH HEIGHT	R1	R2	R3	R4	TARGET HEIGHT	TARGET RANGE	TARGET WIDTH	POSITION
MANUAL	5000709	29.6	13.5	57.5	58.0	63.5		1.17M	56.16	0.51	
INTAC	5000709	29.6	13.5	—	—	—		1.2 M	57.1	1.0	40 50 03 2/73 46 41.5
DIFFERENCE								0.03	1.0	0.49	
MANUAL	P000810	29.6	15.0	29.5	~~15.0~~ 30.0	55.5		6,89 M	28,36	0,52	
INTAC	P000810	29.6	15.0	—	—	—		7.7 M	24,0	2,2	40 50 08/73 46 45
DIFFERENCE								0.8	4.4	1,68	
MANUAL											
INTAC											
DIFFERENCE											
MANUAL											
INTAC											
DIFFERENCE											
MANUAL											
INTAC											
DIFFERENCE											
MANUAL											
INTAC											
DIFFERENCE											

DOY - 275
VES - ~~9044~~ 9140 CHECK

Side Scan Sonar Contact List
AWOIS # 4388 & 4387

OPR-B661-RU/HE/86

FIELD SHEET # R/H 10-02-86 (B)

EVENT #	LAYBACK	RANGE	POSITION	TARGET HEIGHT	CHARTED DEPTH FT	COMPUTED DEPTH FT	REMARKS		INITALS
P001411	29.8	34.0	40 50 07.13 N 73 46 23.88 W	0.4	65	64.0	DSF DEVELOPED INSIGNIFICANT	S	AGF
S001545	32.8	53.4	40 50 03.76 N 73 46 04.57 W	1.5	≈ 63	64.0	DSF DEVELOPED INSIGNIFICANT	S	AGF
S001574	32.8	24.1	40 50 03.56 N 73 46 13.13 W	0.1	≈ 63	65.0	DSF DEVELOPED INSIGNIFICANT	S	AGF
P001584	32.8	81.9	40 49 59.33 N 73 46 17.42	N/A	POS ONLY		DSF DEVELOPED - INSIGNIFICANT Double Return	I	AGF

I - INVESTIGATE   S - INSIGNIFICANT

DOY - 274
VES - 9044 (CHECK)
5140

Side Scan Sonar Contact List

AWOIS # 4417

OPR-B661-RU/HE/86

FIELD SHEET # 10-02-86 (B)

EVENT #	LAYBACK M	RANGE M	POSITION	TARGET HEIGHT	CHARTED DEPTH FT	COMPUTED DEPTH FT	REMARKS	INITALS
S000705	29.6	3.3	40 50 05.07 N 73 46 41.97 W	N/A	POS	ONLY	DSF DEVELOPED — INSIGNIFICANT REEF AREA I	ALF
S000709		57.1	40 50 03.16 N 73 46 44.46 W	1.2 M	NCP	60'	TARGET - INSIGNIFICANT S	ALF
P000780		28.8	40 50 01.12 N 73 46 45.27 W	N/A	POS	ONLY	DSF DEVELOPED - INSIGNIFICANT REEF AREA I	ALF
S000789		13.8	40 50 65.52 N 73 46 44.35 W	4.5	NCP	48'	DSF DEVELOPED - INSIGNIFICANT MOUND OF REEF AREA I	ALF
P000810		24.0	40 50 07.97 N 73 46 45.05 W	7.7	NCP	42'	DSF DEVEL-INSIG (SEE 000907) TARGET (INVESTIGATE) I	ALF
P000814		41.4	40 50 06.30 N 73 46 44.48 W	N/A	POS	ONLY	REEF AREA AWOIS 4417B I	ALF
S000828		17.5	40 50 00.16 N 73 46 46.91 W	N/A	POS	ONLY	REEF AREA (AWOIS 4417A) I	ALF
S000890		19.0	40 50 57.76 N 73 46 48.74 W	N/A	POS	ONLY	REEF AREA (AWOIS 4417A) I	ALF
P000897		76.4	40 50 00.93 N 73 46 51.55 W	-13.1	NCP	87'	SCOUR (2) DSF DEVELOP - INSIGNIFICANT S	ALF
S000907		71.8	40 50 05.50 N 73 46 45.03 W	N/A	POS	ONLY	DSF DEVELOPED - INSIGNIFICANT REEF AREA (SEE S000810) I	ALF
P000940	↓	73.8	40 50 00.07 N 73 46 49.77 W	N/A	POS	ONLY	INSIGNIFICANT REEF AREA I	ALF

NCP - No Comparison Possible
(Inadequate Sounding on Chart)

VII

LEGEND I - INVESTIGATE S - INSIGNIFICANT

DOY - 274
VES - ~~9041~~ 9140 (CHECK)

Side Scan Sonar Contact List

OPR-B661-RU/HE/86

AWOIS # 4418

FIELD SHEET # R/H 10-02-86 (B)

EVENT #	LAYBACK	RANGE	POSITION	TARGET HEIGHT	CHARTED DEPTH	COMPUTED DEPTH	REMARKS		INITALS
S000977	26.6'	19.9'	40 50 06.49 N 73 46 44.24 W	N/A	Pos	Only	DSF Devel - INSIGNIFICANT REEF AREA	I	ACF
P000990	26.6'	10.1'	40 50 34.93 N 73 46 37.01 W	N/A	Pos	Only	DSF Devel - INSIG REEF AREA NEAR 4418B	S	ACF
P001060	29.6'	7.1'	40 50 10.38 N 73 46 38.18 W	N/A	Pos	Only	DSF Devel - INSIG REEF AREA NEAR 4418BS		ACF
P001073	29.6'	47.4'	40 50 07.72 N 73 46 43.78 W	3.6	≈ 50'	37.4'	(SEE 000977) TARGET DSF DEVELP - INSIG	I	ACF
P001103	29.6'	82.9'	40 50 13.11 N 73 46 46.10 W	N/A	Pos	Only	DSF DEVELP - INSIG TARGET - Shadow Runs off Paper	I	ACF
P001111	29.6'	8.5'	40 50 11.19 N 73 46 41.10 W	N/A	Pos	Only	DSF DEVELOPED REEF AREA (NEAR 4418A)	I	ACF
S001165	29.6'	30.0'	40 50 19.17 N 73 46 19.54 W	0.9	≈ 42'	46.2'	DSF DEVELOPED INSIG INSIGNIFICANT	S	ACF
P001206	29.6'	9.0'	40 50 13.07 N 73 46 41.29 W	N/A	Pos	Only	DSF DEVELOPED REEF AREA (NEAR 4418A)	S	ACF
S001213	29.6'	58.4'	40 50 13.72 N 73 46 45.50 W	N/A	Pos	Only	DSF DEVELOPED SOUR - INSIGNIFICANT	S	ACF
P001256	26.6'	17.0'	40 50 14.96 N 73 46 43.74 W	2.0	≈ 52'	52.48'	DSF DEVELOPED - INSIGNIFICANT SMALL TARGET	S	ACF
					NCP-		No COMPARISON Possible (Chart # 12366) Inadequate soundings IN area		

I - INVESTIGATE

S - INSIGNIFICANT

SEQ #	EVENT	LATITUDE	LONGITUDE	LAT. RNG.	HEIGHT	LENGTH	WIDTH
1	000705	40 50' 05.07"N	73 46' 41.97"W	3.3			
	Fix before	40 50' 06.00"N	73 46' 41.60"W				
	Fix after	40 50' 01.60"N	73 46' 42.00"W		Layback	30	
2	s000709	40 50' 03.16"N	73 46' 44.46"W	57.1	1.2	3.4	1.0
	Fix before	40 50' 06.00"N	73 46' 41.60"W				
	Fix after	40 50' 01.60"N	73 46' 42.00"W		Layback	30	
3	000780	40 50' 01.12"N	73 46' 45.27"W	28.8			
	Fix before	40 49' 58.00"N	73 46' 43.00"W				

Fix after		40 50' 02.20"N	73 46' 44.20"W						
4	s000789	40 50' 05.52"N	73 46' 44.35"W	13.8	4.5	20.5	9.6		
Fix before		40 50' 02.20"N	73 46' 44.20"W						
Fix after		40 50' 06.60"N	73 46' 43.40"W		Layback	30			
5	p000810	40 50' 07.97"N	73 46' 45.05"W	24.0	7.7	5.7	2.2		
Fix before		40 50' 11.00"N	73 46' 45.40"W						
Fix after		40 50' 07.00"N	73 46' 46.10"W		Layback	30			
6	p000814	40 50' 06.30"N	73 46' 44.48"W	41.4					
Fix before		40 50' 07.00"N	73 46' 46.10"W						
Fix after		40 50' 02.70"N	73 46' 46.20"W		Layback	30			
7	000828	40 50' 00.16"N	73 46' 46.91"W	17.5					
Fix before		40 50' 02.70"N	73 46' 46.20"W						
Fix after		40 49' 58.30"N	73 46' 45.90"W		Layback	30			
8	000890	40 49' 57.76"N	73 46' 48.74"W	19.0					
Fix before		40 49' 54.90"N	73 46' 47.00"W						
Fix after		40 49' 58.90"N	73 46' 48.10"W		Layback	30			
9	p000897	40 50' 00.93"N	73 46' 51.55"W	76.4	-13.1	10.7	1.8		
Fix before		40 49' 58.90"N	73 46' 48.10"W						
Fix after		40 50' 03.30"N	73 46' 48.20"W		Layback	30			
10	s000907	40 50' 05.50"N	73 46' 45.03"W	71.8					
Fix before		40 50' 03.30"N	73 46' 48.20"W						
Fix after		40 50' 08.00"N	73 46' 47.70"W		Layback	30			
11	p000940	40 50' 00.07"N	73 46' 49.77"W	23.8					
Fix before		40 50' 04.60"N	73 46' 50.90"W						
Fix after		40 49' 59.00"N	73 46' 50.60"W		Layback	30			

#	EVENT	LATITUDE	LONGITUDE	LAT.RNG.	HEIGHT	LENGTH	WIDTH
1	s000977	40 50' 06.49"N	73 46' 44.24"W	19.9			
	Fix before	40 50' 05.40"N	73 46' 47.60"W				
	Fix after	40 50' 08.00"N	73 46' 42.50"W	Layback	27		
2	s000990	40 50' 34.93"N	73 46' 37.01"W	10.1			
	Fix before	40 50' 08.00"N	73 46' 42.50"W				
	Fix after	40 50' 36.90"N	73 46' 36.90"W	Layback	27		
3	p001060	40 50' 10.38"N	73 46' 38.18"W	7.1			
	Fix before	40 50' 11.80"N	73 46' 34.60"W				
	Fix after	40 50' 10.10"N	73 46' 39.30"W	Layback	30		
4	p001073	40 50' 07.72"N	73 46' 43.78"W	47.4	3.6	24.7	0.8
	Fix before	40 50' 09.00"N	73 46' 44.60"W				
	Fix after	40 50' 06.70"N	73 46' 49.20"W	Layback	30		
5	p001103	40 50' 13.11"N	73 46' 46.10"W	82.9			
	Fix before	40 50' 10.30"N	73 46' 45.90"W				
	Fix after	40 50' 11.20"N	73 46' 40.00"W	Layback	30		
6	p001111	40 50' 11.19"N	73 46' 41.10"W	8.5			
	Fix before	40 50' 11.20"N	73 46' 40.00"W				
	Fix after	40 50' 13.40"N	73 46' 34.70"W	Layback	30		

InTAC Instant Target Analysis Computer

SEQ	#	EVENT	LATITUDE	LONGITUDE	LAT.RNG.	HEIGHT	LENGTH	WIDTH
1		s001165	40 50' 13.17"N	73 46' 19.54"W	30.0	0.9	3.4	2.4
		Fix before	40 50' 13.20"N	73 46' 17.90"W				
		Fix after	40 50' 17.90"N	73 46' 23.20"W	Layback	30		
[illegible]		[illegible]	40 50' 13.07"N	73 46' 41.29"W	9.0			
		Fix before	40 50' 14.20"N	73 46' [illegible]"W				
		Fix after	40 50' [illegible]"N	73 46' 44.10"W	Layback	30		
3		s001[illegible]	40 50' 13.72"N	73 46' [illegible]"W	58.4			
		Fix before	40 50' 12.00"N	73 46' [illegible].10"W				
		Fix after	40 50' 10.40"N	73 46' [illegible]"W	Layback	30		
4		s001256	40 50' 14.96"N	73 46' [illegible]"W	[illegible]	[illegible]	[illegible]	1.9
		Fix before	40 50' 13.50"N	73 46' [illegible].30"W				
		Fix after	40 50' 15.70"N	73 45' 39.20"W	Layback	27		

DOY 274

MANUAL VS INTAC CALCULATIONS

OPR-B660-RU/HE/86 FIELD SHEET # R/H 10-02-86(B) AWOIS # 4418

	EVENT #	LAYBACK	FISH HEIGHT	R1	R2	R3	R4	TARGET HEIGHT M	TARGET RANGE M	TARGET WIDTH M	POSITION
MANUAL	A001073	29.6	13.0	48.0	49.0	70.0		3.9	47.13	1.02	
INTAC	P001073	29.6	13.0	—	—	—		3.6	47.4	0.8	40/50/07.7 / 73/46/49.8
DIFFERENCE								0.3	0.23	0.22	
MANUAL	S001165	29.6	9.0	31	33	37		0.97	29.94	2.07	
INTAC	S001165	29.6	9.0	—	—	—		0.9	30.0	2.4	40/50/19.2 73/46/15.5
DIFFERENCE								0.07	0.06	0.33	
MANUAL	P001256	26.6	15.6	23	24	27.0		1.67	18.74	1.21	
INTAC	P001256	26.6	15.0	—	—	—		2.0	17.0	1.9	40/50/15.0 73/46/43.7
DIFFERENCE								0.33	1.74	0.69	
MANUAL											
INTAC											
DIFFERENCE											
MANUAL											
INTAC											
DIFFERENCE											
MANUAL											
INTAC											
DIFFERENCE											

R/H 10-2-86 (A) JD 275

Sonar Coverage Abstract OPR-B660 R/H-86 Item No. 4416

Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Maximum Track Spacing (m)	Coverage Analysis	ARC
161-165	100	~~9~~	~~90~~	166-172	100	10	100	69	200%	1275
166-172	"	10	100	173-177	"	10	100	79	~~200%~~	1325
173-177	"	10	100	178-184	"	10	100	65	200%	1375
178-184	"	10	100	185-189	"	12	100	~~5367~~	~~200~~	1425
185-189	"	~~12~~ 11	100	190-195	"	11	100	~~6871~~	200	1475
190-195	"	11	100							1525

✓ Auto 10-17

Side Scan Sonar Contact List

OPR-B661-RU/HE/86 AWOIS # 4416 FIELD SHEET # R/H A10286

EVENT #	LAYBACK (+7M)	RANGE	POSITION	TARGET HEIGHT	CHARTED DEPTH	COMPUTED DEPTH	REMARKS	INITALS
P0187	~~204~~ 17M	~~39.3~~	40 48 59.53 N 73 46 56.40 W	POSITION Only			LARGE Undefined Area	AST
	17						Investigate by DSF	
	17						NEAR # 4416	

DOY 275 #4416

SEQ #	EVENT	LATITUDE	LONGITUDE	LAT. RNG.	HEIGHT	LENGTH	WIDTH
1	p00187.7	40 48' 59.53"N	73 46' 56.40"W		39.3		
	Fix before	40 49' 03.50"N	73 46' 57.00"W				
	Fix after	40 48' 58.90"N	73 46' 58.10"W		Layback	17	

R/H 10-02-86 (B).
DOY 275

9044 -Hock
9140

SONAR COVERAGE ABSTRACT

OPR- B660-86 ITEM# 4388 & 4387

SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	MAXIMUM TRACK SPACING (M)	COVERAGE ANALYSIS	ARC
0129-0133	100	100	14	0134-0139	100	100	14	61	200%	2575
0134-0139	↓	100	14	0140-0145	↓	100	13	70	200%	2525
0140-0145		100	13	0146-0150		100	13	52	200%	2475
0146-0150		100	13	0151-0155		100	13	71	200%	2425
0151-0155		100	13	0156-0160		100	13	67	200%	2375
0156-0160	↓	100	13							2325

KFS
ACT 10-17

5	p001411	40 50' 07.13"N	73 46' 23.88"W	34.0	0.4	3.0	0.8
	Fix before	40 50' 06.10"N	73 46' 22.50"W				
	Fix after	40 50' 06.80"N	73 46' 17.30"W	Layback	30		
6	s001545	40 50' 03.76"N	73 46' 04.57"W	53.4	1.5	7.1	6.4
	Fix before	40 50' 05.30"N	73 46' 06.00"W				
	Fix after	40 50' 05.70"N	73 46' 00.70"W	Layback	33		
7	s001574	40 50' 03.56"N	73 46' 13.13"W	24.1	0.1	3.8	1.5
	Fix before	40 50' 03.00"N	73 46' 11.10"W				
	Fix after	40 50' 01.90"N	73 46' 17.60"W	Layback	33		
8	p001584	40 49' 59.33"N	73 46' 17.42"W	81.9			
	Fix before	40 50' 01.90"N	73 46' 17.60"W				
	Fix after	40 50' 01.30"N	73 46' 22.50"W	Layback	33		

MANUAL VS INTAC CALCULATIONS

OPR-B660-RU/HE/86 FIELD SHEET # R/H 10-2-86(B) AWOIS # 4388 + 4387

	EVENT #	LAYBACK	FISH HEIGHT	R1	R2	R3	R4	TARGET HEIGHT M	TARGET RANGE M	TARGET WIDTH M	POSITION
MANUAL	P001411	29.8	13.5		35.0	~~36.5~~	37.0	0.18	32.37	1.62	
INTAC	P001411	29.8	13.5		—	—	—	0.4 ~	34.0 ~	0.18 ~	40 50 07/73 46 23.9
DIFFERENCE								0.22	1.63	0.82	
MANUAL	S001545	32.8	15.5		54.0	59.0	66.0	1.64	52.19	5.16	
INTAC	S001545	32.8	15.5		—	—	—	1.5 ~	53.4 ~	6.4 ~	40 50 03.8/73 46 04.6
DIFFERENCE								0.14	1.21	1.24	
MANUAL	S001574	32.8	13.0		~~27.0~~ 28.0	~~27.5~~	28.0	0.23	23.79	0.57	
INTAC	S001574	32.8	13.0		—	—	—	0.10 ~	~~24.1~~ ~	1.5 ~	40 50 03.6/73 46 13.1
DIFFERENCE								0.13	0.31	0.93	
MANUAL											
INTAC											
DIFFERENCE											
MANUAL											
INTAC											
DIFFERENCE											
MANUAL											
INTAC											
DIFFERENCE											

JD 296

SONAR COVERAGE ABSTRACT

OPR- B660-BC ITEM# 4389

SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	MAXIMUM TRACK SPACING (M)	COVERAGE ANALYSIS
0577 - 0580	100	100	16	0582-0587	100	100	10	35	200% ARC 2620
0582 - 0587	100	100	~~15~~ 10	0588-0592	100	100	12.5	~~40~~ 25	200% 2670
0588 - 0592	100	100	12.5	0593-0597	100	100	12.5	30	200% 2720
0593 - 0597	100	100	12.5	0598-0602	100	100	11	18	200% 2770
0598 - 0602	100	100	11	0603-0609	100	100	10	12	200% 2820
0603 - 0609	100	100	10						2870

JD 296

4386

SONAR COVERAGE ABSTRACT

OPR- B660-86 ITEM# ~~4447~~

SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	MAXIMUM TRACK SPACING (M)	COVERAGE ANALYSIS
0559- 0563	100	100	14	0564-0567	100	100 ~~13~~	13		Arc 2275
0564-0567	100	100	13	0568-0572	100	100 ~~12~~	12		2225
0568- 0572	100	100	12	0573-0576	100	100 ~~11~~	12		2175
0573 -0576	100	100	12						2125

JD 288
290

Sonar Coverage Abstract OPR-B660 Item No.

Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Maximum Track Spacing (m)	Coverage Analysis	ARC
5001-5010	100	10m	100	5011-5020	100	10m	100	53	200%	2350
5011-5020	100	10	100	5021-5032	100	10.5m	100	60	200%	2400
5021-5032	100	10.5	100	5033-5043	100	12 m	100	74	200%	2450
5033-5043	100	12m	100	5044-5061	100	9 m	100	61	200%	2500
5044-5061	100	9	100	5062-5070	100	10	100	66	200%	2550
5062-5070	100	10	100	5071-5085	100	10	100	67	200%	2600
5071-5085	100	10	100	5086-5097	100	10.5	100	60	200%	2650
5086-5097	100	10.5	100	5098-5111	100	11	100	58	200%	2700
5098-5111	100	11	100	5112-5123	100	12	100	59	200%	2750
5112-5123	100	12	100	5124-5136	100	11	100	54	200%	2800
5124-5136	100	11	100	5137-5146	100	12	100	64	200%	2850
5137-5146	100	12	100	5147-5159	100	11	100	75	200%	2900
5147-5159	100	11	100	5160-5169	100	12	100	68	200%	2950
5160-5169	100	12	100	5245-5255	100	8	100	67	200%	3000
5245-5255	100	8	100	5365-5376	100	8	100	76	200%	3050
5365-5376	100	8	100	5352-5363	100	8	100	74	200%	3100
5352-5363	100	8	100	5339-5351	100	6	75	57	200%	3150
5339-5351	100	6	75	5327-5338	100	6	75	66	200%	3200

SONAR COVERAGE ABSTRACT

OPR- B660 ITEM#

SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	MAXIMUM TRACK SPACING (M)	COVERAGE ANALYSIS	
5327-5338	100	75	6	5314-5326	100	100	9	56	200%	3250
5314-5326	100	100	9	5302-5313	100	100	11	65	200%	3300
5302-5313	100	100	11	5289-5301	100	100	11	56	200%	3350
5289-5301	100	100	11	5256-5265	100	100	13	60	200%	3400
5256-5265	100	100	13	5266-5277	100	100	8	51	200%	3450
5266-5277	100	100	8	3278-5288	100	100	13	69	200%	3500
5278-5288	100	100	13	5233-5244	100	100	90	61	200%	3550
5233-5244	100	100	9	5223-5232	100	100	90	73	200%	3600
5223-5232	100	100	9	5212-5222	100	10	100	59	200%	3650
5212-5222	100	10	100	5203-5211	100	12	100	59	200%	3700
5203-5211	100	12	100	5193-5202	100	11	100	52	200%	3750
5193-5202	100	11	100	5184-5192	100	14	100	58	200%	3800
5184-5192	100	14	100	5177-5183	100	16	100	56	200%	3850
5177-5183	100	16	100	5170-5176	100	14	100	53	200%	3900
5170-5176	100	14	100							3950

See section 7.a.7) of the Evaluation Report.

AWOIS # 4389 SHEET R/H 10-02-86

1) EXPECTED FEATURE

AWOIS item 4389 was reported as an obstruction, cleared by 54 ft. (by FE-174, 1960) hung at 55 ft. at LAT. 040° 50' 16.80" N, LONG. 073° 45' 49.80" W. This item is not considered a hazard to navigation.

2) AREA SURVEYED

The AWOIS listing (dated April 1, 1986) called for a 75 meter radius search area centered around the charted position. Verification or Disproval by side scan sonar, wire drag, or diver investigation was required.

On DOY 296, 200% side scan sonar coverage was run over the reported position of the AWOIS item. (400% required) No significant contacts were seen in the area. Reduced soundings (reduced for predicted tides, draft, instrument error) along the side scan sonar lines showed depths deeper than that expected for the item under investigation. Generally depths ranged from 58-90 ft in the area of the item. No evidence of the AWOIS item was seen and no further work was performed on this item.

3) COMPARISON WITH PRIOR SURVEY

Soundings from Hydrographic Survey No. 5546 (June-July, 1934, 1:10,000 scale) were compared against hydrographic data gathered during the investigation of this AWOIS item. Five soundings from the prior survey were compared. None of the soundings fell on or near any of the soundings gathered during the investigation of this item. An adequate comparison can not be performed.

4) COMPARISON WITH CHART

Soundings from Chart 12366 (19th Edition, Feb. 4/84, 1:20,000 scale) were compared against data collected during the investigation of this AWOIS item. One sounding fell within the area of work on this item. No meaningful comparison can be performed with this chart.

5) DIVE REPORT

No dives were performed on this AWOIS item due to high levels of pollutants in the surrounding waters.

6) RECOMMENDATIONS

AWOIS item 4389 is not considered disproved by 200% side scan sonar coverage of the search area. ~~No contacts were seen and it is recommended that the item be removed from the next edition of the chart 12366 and 12363 and replaced with soundings representative of the area.~~ Do not concur

See section 7.a.7) of the Evaluation Report.

3) COMPARISON WITH PRIOR SURVEY

Soundings form Hydrographic survey No. 5547 (June-August, 1934, 1:10,000 scale) were compared against hydrographic data gathered during the investigation of this item. Ten soundings were compared between the prior survey and the sounding plot. An apparent shoaling of 2-4 ft. can be seen throughout the survey area. It is suspected by the hydrographer that sedimentation has occurred in this area.

The prior survey position of the 44 ft. sounding plots within 10 to 15 meters of the position affixed during this survey. Some positional offset can be expected in transferring the sounding from a 1:10,000 scale sheet to a 1:2,000 scale sheet. In general the comparison is considered adequate.

4) COMPARISON WITH THE CHART

Soundings from chart 12366 (19th Edition,Feb. 4/84, 1:20,000 scale) were compared against hydrography gathered during this investigation. Only three soundings fell within the limits of the area under investigation. None of these soundings fell on or near any of the sounding data gathered and no meaningful comparison could be performed.

5) DIVE REPORT

No dives were conducted on this AWOIS item investigation due to the high levels of pollutants in the surrounding waters.

6) RECOMMENDATIONS

~~It is recommended that this item be charted as a rock wire drag cleared to 43.0 ft.(corrected for smooth tides) per Section 0, symbol No. 6a in NOS Chart No. 1, Eighth Edition, November 1984 at LAT. 040° 49' 01.3" N, LONG. 073° 45' 55.3" W.~~ Do not concur. Based on the amount of deep draft vessel traffic in this area, this item should be considered a hazard to navigation. Concur

~~The current symbol of AWOIS item 4416 should be removed from future editions of charts 12366 and 12363 and replaced by the afore mentioned item.~~ Do not concur.

In addition, the observed shoaling should be considered when planning future hydrographic operations in this area. Concur

See section 7.a.12) of the Evaluation Report.

DIVE INVESTIGATION REPORT
OPR-B660-RU-86
R/H 10-03-86

DIVE NUMBER:NINE DIVE DATE: November 18, 1986

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY:Western Long Is. Sound

B. POSITION: 5747-5749 LATITUDE: 040° 52' 32.23" N
LONGITUDE: 073° 41' 52.42" W

C. METHOD OF POSITIONING: Mini-ranger Falcon 484(Range/Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: 4397

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): Side scan sonar record.

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.):N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS:N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): Side scan sonar investigation originally identified the target

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.) A marker buoy was deployed and a circle search was performed

C. KNOWN REFERENCE TO FEATURES NEARBY: East,Southeast of Execution Rocks approximately 1.9 nm.

D. AREA AND DEPTHS COVERED: General depths encountered the dive were around 44 FSW as observed on the divers depth gauge.

IV. DIVE DATA

A. DIVERS: A. Francis, K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1453
ELAPSED: 34 min

DIVER'S ITEM INVESTIGATION REPORT
OPR-B660-RU-86

ITEM: #4396 FIELD SHEET: R/H 10-03-86

STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Island Sound

DATE:November 17, 1986 JD:321 SHIP/LAUNCH:NOAA Ship RUDE (9040)

DIVEMASTER:A. Francis DIVERS: A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1910			
UNDER WATER	1912			
ON SURFACE	1943			
IN BOAT	1947			
DIVE DURATION	31 min			
MAXIMUM DEPTH	34 FSW			

POSITION (If negative report, center of search area)

LAT: 040° 52' 05.50" N LONG: 073° 40' 59.14" W

POSITION NO. #5746,5750 VISIBILITY HOR.4-5 FT. VERT. 4-5 FT.

CURRENT: Moderate (< 1 kt.)

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1938

1. PNEUMO DEPTH 20.3 FT.
2. PNEUMO CORR. 0.0 FT.
3. FT. 20.3

PNEUMO S/N:8607004N (0-70FSW) TIDE CORR. -5.0 FT.

TARGET FEATURE:AWOIS #4396 LEAST DEPTH: 15.3 MLLW

REMARKS

A marker buoy was deployed and a circle search was begun. An 18 inch diameter steel pipe embedded in the ocean floor, protruding approx. 15 FT. vertically off the bottom was found. A least depth was taken along with a detached position. It appeared to the divers that the structure was some sort of dredge spud left behind or some similar structure used to moor to. The pipe had a lifting eye on the top.

IV. DIVE DATA

A. DIVERS: A. Francis, K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1912
ELAPSED: 31 minutes

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION):
Genaral bottom depths ranged between 30-35 FSW.

D. CURRENT AND CONDITIONS: Current was moderate at the time of the dive. The water was extremely cold.

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
HOR: 4-5 FT> VER: 4-5 FT>

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Muddy "Muck"

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): #5746,5750

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: 1938,1911

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): 20.3 FT.

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): A pneumofathometer was used to obtain the raw least depth

B. DESCRIPTION OF FINDINGS: A large metalic pole like structure was found protruding upward approximately 15 Ft.(as messured by divers depth gage) above the ocean floor. The pole was 18 inches in diameter with a lifting eye at the top. It is the opinion of the divers that this object was some sort of dredge spud or similar device. By the amount of sea growth on the pole, it has not been down for a long time.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE):
Hieght: Approx. 15 Ft., Width: 18 inches

D. UNUSUAL CONDITIONS: Very cold water

VI. CHARTING RECOMMENDATIONS

POSITION LAT. 040° 52' 05.50" N LONG. 073° 40' 59.14" W

REDUCED DEPTH: 15.3 FT.

TYPE OF FEATURE (REFERENCE CHART NO.1):Section O, page 13 of Chart 1, This item should be charted as a dangerous submerged ~~pile~~ obstruction with a known depth over it. The item should be considered a hazard to navigation. A notice to mariners was sent out on this item on December 9, 1986 (DOY 343)

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

11/17/86 (321)

UNIT: NOAA Ship Rude

LOCATION: W. Long Island Sound

DIVEMASTER: Lt(jg) A. Francis

TENDERS: Brooks + Styron

SCIENTISTS: K. Sharack

DIVE PLAN: Circle Search for AWOIS 4396

MAX. DEPTH: 34'

MAX. TIME:

EQUIPMENT USED: Open Circut Scuba

CONDITIONS:

WIND: 5-10

SEAS: 1

CURRENT: 1

VISIBILITY: Un/im

AIR TEMP.: 50

WATER TEMP: 50

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME UTC IN / OUT	BOTTOM TIME	DEPTH	GROUP
A. Francis	–	–	–	2550 / 700	1850	1912 / 1934	31	20.3 / 1938	
K. Sharack	–	–	–	2550 / 1000	1550	1912 / 1834	31	34	
A. Francis	–	–	–			1937 / 1943		34	
K. Sharack	–	–	–			1937 / 1943			

POST DIVE COMMENTS: AWOIS 4396 FOUND = LARGE PIPE ≈ 18" ACCROSS protruding off BOTTOM x 15' LD + D.A Taken, Water extremely cold limiting dive Time. DA w/ only Two rates, return tomorrow (322) To get 3 pt. fix (pos 5750)

[signature]

DIVEMASTER SIGNATURE

EXHIBIT 2

DOY 321
11-17-86

Sheet R/H-103-86

DETACHED POSITION DATA SHEET

STATION NUMBER	M/R CODE	STATION NAME
14	3	EXECUTION RKS ECC
6	6	LARCHMONT LT

****

Awois Item # 4396 Site ID Lettter C

DP #1 :

#5617

STATION NUMBER	M/R RATE	SS	LORAN C	TIME (Z)
6	4763.4	46	26909.3	~~20:12~~ 1938
	6878.6	42	43926.6	

DP #2 :

STATION NUMBER	M/R RATE	SS	LORAN C	TIME (Z)

DP #3 :

STATION NUMBER	M/R RATE	SS	LORAN C	TIME (Z)

DP #4 :

STATION NUMBER	M/R RATE	SS	LORAN C	TIME (Z)

Pneumofathometer Field Sheet

PROJECT B660-RU-86 DOY 321 SHEET R/H 10-3-86

****

A) ITEM # 4396 SITE LETTER C

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	1938	20.3	-5.0	15.3
2)	1938	20.3	-5.0	15.3
3)	1938	20.3	-5.0	15.3
4)	1938	20.3	-5.0	15.3

Average Least Depth 15.3

B) ITEM # ____ SITE LETTER ____

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	_____	____	____	____
2)	_____	____	____	____
3)	_____	____	____	____
4)	_____	____	____	____

Average Least Depth _____

Pneumofathometer Field Sheet

PROJECT B660-RU-86 DOY 307 SHEET R/H 10-3-86

****

A) ITEM # 1729 SITE LETTER E

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	1652	66.0	-8.0	58.0
2)	1652	66.0	-8.0	58.0
3)	1652	66.0	-8.0	58.0
4)	____	____	____	____

Average Least Depth 58.0

B) ITEM # ____ SITE LETTER ____

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	____	____	____	____
2)	____	____	____	____
3)	____	____	____	____
4)	____	____	____	____

Average Least Depth _____

DOY 307 Sheet 10-3-86

DETACHED POSITION DATA SHEET

STATION NUMBER	M/R CODE	STATION NAME
14	3	EXECUTION Rks
6	6	LARCHMONT LT.
4	5	Throggs Neck LT

****

Awois Item # 129 Site ID Lettter E

DP #1 :

STATION NUMBER	M/R RATE	SS	LORAN C (CHAIN 9960)	TIME (Z)
14	1823.3	22	26931.4	~~1234~~
6	3370.8	41	43941.6	1734
4	11027.6	32	_____	_____

DP #2 :

STATION NUMBER	M/R RATE	SS	LORAN C	TIME (Z)
14	1826.4	28	26931.4	_____
6	3368.8	40	43941.5	1759
4	11030.8	29	_____	_____

DP #3 :

STATION NUMBER	M/R RATE	SS	LORAN C	TIME (Z)
14	1827.3	35	26931.4	_____
6	3372.5	39	43941.5	~~1806~~ 1652 for Pneumo Plot
4	11030.5	34	_____	_____

DP #4 :

STATION NUMBER	M/R RATE	SS	LORAN C	TIME (Z)
_____	_____	_	_____	_____
_____	_____	_	_____	_____
_____	_____	_	_____	_____

AMC FORM DV-2 10-03-#7

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

10/~~30~~/86 DOY ~~308~~ 307 11/3/86 UNIT: ~~SITE #3~~ E NOAA SHIP RUDE

LOCATION: W. Long Island Sound

DIVEMASTER: Lt(JG) ART FRANCIS
TENDERS:

SCIENTISTS: Keith Sharack

DIVE PLAN: DIVE SITE E - Possible Wreck MAX. DEPTH:
MAX. TIME:

EQUIPMENT USED: OPEN CIRCUIT SCUBA

CONDITIONS:
WIND: 5-10 KTS
SEAS: 1-2 FT
CURRENT: 0- KTS

VISIBILITY: 0'- (H_2O)
AIR TEMP.: 50 °F
WATER TEMP: 55 °F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME IN / OUT	BOTTOM TIME	DEPTH	GROUP
Francis	—	—	—	2500 / 800	1700	1610 / 1628	18	85'	F
SHARACK	—	—	—	2650 / 1000	1650	1610 / 1628	18	85'	F
				/		/			
FRANCIS	22 MIN	F	28	2700 / 2200	500	1650 / 1655	5	80'	H
SHARACK	22 MIN	F	28	2300 / 1800	500	1650 / 1655	5	80'	H
				/		/			
FRANCIS	19 MIN	H	0	2200 / 2100	100	1714 / 1716	2	10'	H
SHARACK	19 MIN	H	0	1800 / 1700	100	1714 / 1716	2	10'	H

POST DIVE COMMENTS: DIVES 1 & 2 WERE ON SITE E. DIVE 3 WAS ON THE SHIP TO REMOVE LINE FOULED IN SCREWS

DIVEMASTER SIGNATURE

EXHIBIT 2

DIVE INVESTIGATION REPORT
OPR-B660-RU-86
R/H 10-03-86

DIVE NUMBER:EIGHT DIVE DATE: NOVEMBER 17, 1986 (DOY 321)

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY:Western Long Is. Sound

B. POSITION: #5746 LATITUDE: 040° 52' 05.50" N
LONGITUDE: 073° 40' 59.14" W

C. METHOD OF POSITIONING:Mini-ranger Falcon 484(Range-Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: #4396

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): N/A

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.): N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS: N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): A Side Scan Sonar investigation originally identified the target.

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.) A marker buoy was deployed and a circle search was conducted.

C. KNOWN REFERENCE TO FEATURES NEARBY: East of Execution Rocks approximately 2.5 nm.

D. AREA AND DEPTHS COVERED: Surounding depths were generaly 35 ft. covering a relativly flat bottom as observed on the divers depth gauge.

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

OCTOBER 29, 1986 (004 302) UNIT: NOAA SHIP RUDE (9040)

LOCATION: WESTERN LONG IS. SOUND

DIVEMASTER: FRANCIS
TENDERS: OS LEWIS, SS STYRON, LT Humphrey

SCIENTISTS:

DIVE PLAN: Perform Circle Search around marker buoy deployed by RUDE Take LD/ + DP ON any contacts found

MAX. DEPTH: 60
MAX. TIME: 60 MIN

EQUIPMENT USED: SCUBA - OPEN CIRCUT - AIR

CONDITIONS:
WIND: 10-15 KTS
SEAS: 1-2 FT
CURRENT: 1-2 KTS

VISIBILITY: 1 FT. - H_2O
AIR TEMP.: 68°F
WATER TEMP: 58°F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME (UTC) IN / OUT	BOTTOM TIME	DEPTH	GROUP
① FRANCIS	—	—	—	2900 / 2500	400	1515 / 1524	9	57	B
② SHARACK	—	—	—	2900 / 2300	600	1515 / 1524	9	57	B
				/		/			
③ FRANCIS	18 MIN	B	17	2800 / 1000	1800	1542 / 1603	21	60	G
④ SHARACK	18 MIN	B	17	2900 / 1100	1800	1542 / 1603	21	60	G
				/		/			
⑤ FRANCIS	122 MIN	D	24	2600 / 1000	1600	1805 / 1827	22	60	H
⑥ SHARACK	122 MIN	D	24	3000 / 1000	2000	1805 / 1827	22	60	H

POST DIVE COMMENTS: DIVE #1 - LEAST DEPTH + D.P. TAKEN ON CONTACT - A 17' Power Boat, overturned, protruding 4 ft off BOTTOM. DIVE #2 Investigate DONUT SHAPE CONTACT - Probable TEXTURE change Low Vis, only noticed area of dense crab population in area of no bottom life - (maybe?) DIVE #3 - Looking for possible boat - 20 m search performed - ran out of B.T. prior to finishing 30 m search

DIVEMASTER SIGNATURE

DIVE INVESTIGATION REPORT
OPR-B660-RU-86
R/H 10-03-86

DIVE NUMBER: SEVEN DIVE DATE: November 03, 1986 (DOY 307)

I. AREA OF INVESTIGATION

A. STATE/COUNTY: New York/Nassau SUB-LOCALITY: Western Long Island Sound

B. POSITION: 5591 LATITUDE: 040° 53' 19.00" N
LONGITUDE: 073° 43' 17.88" W

C. METHOD OF POSITIONING: Mini-Ranger Falcon 484 (Range/Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: Contact near AWOIS 1729

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): Side scan sonar record

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.): N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS: N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): SSS Operations originally identified the contact

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.) A marker buoy was deployed near the suspected site and divers descended to the bottom and conducted a circle search around the buoy.

C. KNOWN REFERENCE TO FEATURES NEARBY: Northeast of Execution Rocks

D. AREA AND DEPTHS COVERED: General depths were 70-80 FSW as observed on the the divers depth gauge.

IV. DIVE DATA

A. DIVERS: A. Francis, K Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1610
ELAPSED: 23 min

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION): General bottom depths were 70-80 FSW as messured by divers submersible pressure gage.

D. CURRENT AND CONDITIONS: Cold, Winds-10-15 kts, Seas-1-2 Ft.

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
HOR: 0 Ft. VER: 0 Ft.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Sandy, silty, Muck

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): 5589, 5590, 5591

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE:
5589 - 1734, 5590 - 1759, 5591 - 1652

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): 66.0 Ft./5591

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): Pneumofatometer S/N 8606822N (0-140 FSW)

B. DESCRIPTION OF FINDINGS: During the initial 10 meter search phase of the diver investigation, the divers came upon the apparent remains of a large, highly deteriorated wooden vessel. Several timbers protruding above the bottom were discovered. After continued diver investigation one timber was found to be significantly higher off the bottom then the others and the marker buoy was attached to this timber. On part two of this dive, a Pneumofathometer was taken down to this selected timber and several depth readings were recorded.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE): The debris was such that the divers feel that the circle search identified the shoal pt. for positioning purposes.

D. UNUSUAL CONDITIONS: Limited visibility

VI. CHARTING RECOMMENDATIONS

POSITION LAT. 040° 53' 19.00" N LONG. 073° 43' 17.88" W

REDUCED DEPTH: 58.0 FT.

TYPE OF FEATURE (REFERENCE CHART NO.1): If no other depths are found to be of greater significance, the data gathered during this dive should be charted as a wreck over which the depth is known per Section D, item 15 in NOS Chart No. 1, Eighth Edition, November 1984. ~~This wreck should not be considered a hazard to navigation.~~

See the discussions for item 1729

See section 7.a. 10) of the Evaluation Report.

AWOIS # 4398

(from H-5078WD, 1930)

Reported to be wreckage, 23 feet, (sharp hard obstruction) at 40° 52' 46.5" N, 73° 42' 54.2" W.

AREA SURVEYED

This item was investigated on JD 296 using side scan sonar and echo sounder. No trace of an obstruction was found within the 75 meter search radius during the 400% side scan sonar coverage. However, the object is reported to lie in an area along a ledge littered with boulders (from sonargrams and echograms). Numerous pinnacles or boulders were located southwest and northwest of the search area. The most significant objects were a 7.8 meter pinnacle lying in 42 feet of water, 165 meters southwest of the reported item, at an INTAC computed position of 40° 52' 43.86" N, 73° 42' 59.90" W, and a 5.5 meter pinnacle lying in 46 feet of water, northwest of the reported item, at an INTAC computed position of 40° 52' 52.67" N, 73° 42' 57.19" W. It should be noted that this ledge has depths that drop from 20 feet to over 60 feet in 250 meters. Both of the above pinnacles already appear to be charted as an 18 foot sounding and a 34 foot sounding respectively. Do not agree, see section 7.a. 10) of the Evaluation Report.

COMPARISON WITH PRIOR SURVEYS

This item was compared with prior survey 5545 of 1934. The surveyed depths compare well with the prior survey depths. The only difference is the presence of the wreck.

COMPARISON WITH THE CHART

This item was compared with Chart 12366, 19th edition of February 4, 1984, 1:20,000. Soundings were transferred to the boat sheet prior to beginning of survey operations for on-line comparison. The surveyed depths compared well with charted depths except for the presence of the 23 foot sounding associated with the wreck.

RECOMMENDATIONS

The hydrographer recommends that the charted symbol for AWOIS 4398 be removed as there was no indication of ~~an obstruction~~ wreckage in the search area and other indications of obstructions outside the search area are not adequately charted. Concur

See section 7.a. 10) of the Evaluation Report.

See section 7.a.11) of the Evaluation Report.

AWOIS # 4400

(from CL #286 of 1966)

Reported to be a dangerous submerged wreck, position approximate, at 40° 53' 18" N, 73° 40' 36" W. It was reported as being "not a menace to navigation, and that it had been stripped by divers".

AREA SURVEYED

The item was searched over a 500 meter radius centered over the reported wreck using side scan sonar (400% required) and echo sounders on JD's 308-339. Three small objects were identified on the sonargram with heights of 0.4, 0.5, and 0.8 meters. A parabolic shaped contact was identified on the echo sounder between positions 5639 and 5640 rising 5-6 feet above the bottom. This contact was deemed insignificant as there was no break in the low frequency trace, there was no indication on any sonargram, and the contact appears to be too smooth and regular. The horizontal extent and steepness of the contact is such that it would be impossible for it to exist and not show up on the sonargrams of the same area. It is the opinion of the hydrographer that this contact is a software or temporary interference anomaly of the echo sounder caused by some on-board source.

COMPARISON WITH PRIOR SURVEYS

This item was compared with prior survey 5545 of 1934. The soundings collected by the echo sounder during this investigation compare well with the prior survey soundings.

COMPARISON WITH THE CHART

This item was compared with Chart 12366, 19th edition of February 4, 1984, 1:20,000. Charted soundings were transferred to the boat sheet prior to the beginning of any survey work. These soundings were compared on-line with the survey soundings. There was no discrepancy between these sets of soundings.

RECOMMENDATIONS

It is recommended by the hydrographer that the chart symbol for AWOIS 4400 be removed from the charting data base as there was no indication of an obstruction, scouring caused by an obstruction, or shoaling within the search area. Do not concur.

See section 7.a.11) of the Evaluation Report.

See section 7.a. 12) of the Evaluation Report.

AWOIS # 4416 SHEET # R/H 10-02-86

1) EXPECTED FEATURE

(from H-5078WD, 1930)

AWOIS item 4416 was reported as boulders 38 ft. (charted as a rock cleared to 35 feet). A 38 ft. developed, a 44 ft. found within 30 meters to the southwest, 38 ft. carried forward and scaled in at LAT. 040° 49' 01.50" N, LONG. 073° 46' 55.0" W.

2) AREA SURVEYED

The AWOIS listing (dated April 1, 1986) called for a 75 meter radius search area centered at the charted position. Verification or disproval by side scan sonar, wire drag, or diver investigation.

400% required

This investigation was conducted in three phases. The first phase of the investigation on DOY 275 (October 2,1986) was the initial 200% side scan sonar search. During this phase, the AWOIS item was thought to be initially identified. Because diving operations were not possible in this area, it was decided to perform a DSF echo-sounder development. Hydrographic lines were run at a line spacing of seven to eight meters apart on DOY 288 (October 15, 1986) to accurately define the shoal area in question. This provided approximately 100% sonification of the bottom. This proved to be difficult due to the size of the vessel, winds, currents and, heavy vessel traffic in the area. During this phase of the investigation, a shoal sounding of 45.~~4~~ ft.(corrected for ~~predicted~~ smooth tides, draft and velocity) was found approximately 10 meters to the southwest. No indication of a 38 ft. sounding was seen. To ensure that no pinnacle obstructions were missed, a series of constant tension wire drags were run over the the shoal area. Only the deepest clearance strip and the hang strip were plotted on the final sheets. The deepest clearance strip (Strip 3, DOY 315) reduced to an effective depth of 42.~~4~~0 ft. The hang strip (Strip 4, DOY 316) reduced to an effective depth of 43.~~4~~ feet at the time of the hang. Each strip was reduced for ~~predicted~~ smooth tides and lift measurements taken during the drag. ~~Based on the the effective depth of the clearance strip, it is felt that the reported 38 ft. bolder is disproved.~~ Several attempts were made to obtain a detached position on the item but based on reasons already mentioned this was not possible. The recommended position under Section 6 which follows is taken from the hydro development data position control records.

Do not concur

As was previously mentioned, constant tension wire drag is a poor method for trying to determine position. In plotting the hang strip it's line of position (LOP) is approximately 25 meters past the DSF developed position. Considering the catenary of the groundline and, the lag time in determining if a hang is actually occurring, it is felt by the hydrographer that the hang was the item being sought. The last lift recorded prior to the hang was fifty seconds before the hang. ~~The deepest clearance depth of 43.0 feet should be used for charting purposes as it is the conservative depth for coverage on the item.~~ Do not concur

75 meter search radius required - on which position, or both? - assumed both.

See section 7.a.2) of the Evaluation Report.

AWOIS # 1731

First described as a wreck, 32 feet long at 40° 53' 48.3" N, 73° 43' 02.5" W, in 41-43 feet of water. Later described as a coal barge in 40 feet of water at 40° 53' 53" N, 73° 42' 43" W. (from H-5078WD, 1930)

AREA SURVEYED
This item was investigated on JD's 288-339 using side scan sonar, echo sounder, divers, and constant tension wire drag.

An initial 200% side scan sonar coverage was performed and two contacts were located that were deemed to be significant. Divers investigated the item labeled D on the boat sheet on 28 October, 1986 (JD 301), dive number 2, and found a badly deteriorated coal barge at (D.P. 5577) 40° 53' 48.18" N, 73° 43' 01.14" W, LORAN-C rates 26930.5, 43945.7. A least depth was determined by echo sounder on this day with a raw depth of 34.8 feet. The depth corrected for ~~predicted~~ smooth tides, draft, and sound velocity is ~~39.2~~ 40 feet. Since the divers found several spurs of coal rising off the bottom, constant tension wire drag was run over the area on JD's 330 to find the least depth overall. A clearance drag depth of 37.3 feet and a hang at 38.8 feet (both corrected for wire lift and predicted tides) were run on JD 330. The hang was approximately 7-15 meters beyond DP # 5577 taken on the diver marker buoy. Taking into account the slight catenary in the wire and the delay in positively identifying the hang, the hydrographer feels that DP # 5577 is a good position. The difference in the DSF determined least depth and the hang depth depth can probably be attributed to predicted tides and wire lift at the actual time of the hang. A further DSF development was run on JD 339 with a least depth corrected for predicted tides, draft, and sound velocity of 40.6.

The constant tension launch wire drag was rejected by the field

The item labeled as F on the boat sheet was diver investigated on 28 and 29 October, 1986 (JD's 301 and 302), dives number 3 and 4. A 5-meter long blue-hulled boat was found at (D.P. 5581) 40° 53' 51.43" N, 73° 43' 04.66" W with a pneumofathometer depth of 42.4 feet. No LORAN-C rates were taken at this site. The least depth corrected for ~~predicted~~ smooth tides is 38.7 feet.

COMPARISONS WITH PRIOR SURVEYS
This item was compared with prior survey 5545 of 1934. The reconnaissance echo sounder depths agreed well with the prior survey.

not common to this item. H-1732a is common.

COMPARISONS WITH THE CHART
This item was compared with Chart 12366, 19th edition of February 4, 1984, 1:20,000. Charted soundings were placed on the boat sheet prior to any survey work to ensure on-line comparisons. The reconnaissance soundings in this area compare well with the charted soundings.

also on 12367

RECOMMENDATIONS
The hydrographer recommends that the following changes be made to the charting data base:

1) Delete the current charting symbol for AWOIS item 1731. Concur

2) For item D, chart a wreck symbol over which a depth is known, ~~not a hazard to navigation,~~ as per Section O, Item 15 in NOS Chart No. 1, 8th edition, November 1984, using the present survey position and the above echo sounder depth corrected for smooth tides, draft, and sound velocity. Concur

3) For item F, chart a wreck symbol over which a depth is known, ~~not a hazard to navigation,~~ as per Section O, Item 15 in NOS Chart No. 1, 8th edition, November 1984, using the present survey position and the pneumofathometer depth corrected for smooth tides. Concur

See section 7.a.2) of the Evaluation Report.

See section 7.a.3) of the Evaluation Report.

AWOIS # 1733

(from H-5078WD, 1930)

Item described as a 24-foot hang (obstruction), 38-foot LL LD, that may not have been an obstruction but a touch bottom at 40° 53' 58" N, 73° 42' 05" W.

AREA SURVEYED

A 400% side scan sonar coverage and concurrent echo sounder development was run on JD's 294-307 over an area of 75 meter radius centered on the AWOIS item. No indication of an obstruction was found on the sonargrams. Several spurious traces from water turbulence were found on the echo sounder, but it is the opinion of the hydrographer that they are not obstructions by reason of comparison with the sonargrams. The echo sounder traces showed a flat bottom of 40 feet.

COMPARISON WITH PRIOR SURVEY

This item was compared with prior survey 1732a of 1914. The surveyed reconnaissance depths from the DSF agreed well with this prior survey.

COMPARISON WITH THE CHART

This item was compared with Chart ~~12366~~, ~~19th edition of February 4, 1984, 1:20,000.~~ Charted soundings were transferred to the boat sheet prior to any survey work to ensure on-line comparison with the chart. The surveyed depths agree well with the charted soundings with no indication of any shoaling or hazards to navigation.

not common to this chart – Common to chart 12367

RECOMMENDATIONS

It is recommended by the hydrographer that this item be removed from the chart. Since there was no indication of shoaling, scouring, or an obstruction, the hydrographer concurs that this was a touch bottom.

Concur

See section 7.a.3) of the Evaluation Report.

See section 7.a.8) of the Evaluation Report.

AWOIS 4396

(from H-5078WD, 1930)

Reported to be an obstruction, 19.5 feet, possibly an old spar or post at 40° 52' 05" N, 73° 40' 57.5" W.

AREA SURVEYED
The item was searched for using side scan sonar, echo sounders, and diver investigation, JD 296. After an initial 200% side scan coverage, a contact was located that was believed to be the item. The item was diver investigated on 17 November, 1986 (JD 321), dive number 8. The divers reported a single steel-like spar, 18 inches in diameter, with a steel lifting eye on the top, possibly an abandoned spud from a dredge, sticking 15 feet straight up from the bottom at (D.P. 5746) 40° 52' 05.50" N, 73° 40' 59.14" W, LORAN-C rates 26909.3, 43926.6, at a pneumofathometer depth of 20.3 feet. The least depth corrected for ~~predicted~~ smooth tides is 15.6 feet.

COMPARISON WITH PRIOR SURVEYS
This item investigation was compared with prior survey 5545 of 1934. The general depths and location of the obstruction compare well with this prior survey. The depth of the obstruction is 3.7 feet shoaler than the depth on the prior. Since there was just the one object and the highest point could readily be determined, the hydrographer is confident that the new least depth is correct.

COMPARISON WITH THE CHART
This item was compared with Chart 12366, 19th edition of February 4, 1984, 1:20,000. Soundings in the immediate area were transferred to the boat sheet prior to the start of any survey work. The reconnaissance hydrography compares well with the charted soundings. The location of the obstruction compares well with the chart, however the surveyed position is slightly west of the charted position and the surveyed depth is 3.7 feet shoaler than the charted depth. For the same reasons as described above, the hydrographer feels that the new information should replace the old.

RECOMMENDATIONS
The hydrographer recommends that the item remain as charted except that the position be changed to reflect the present survey and that the depth be changed to reflect the shoaler survey depth. - Concur

A Notice to Mariners was submitted 9 December, 1986.

See section 7.a.8) of the Evaluation Report.

See section 7.a.9) of the Evaluation Report.

AWOIS 4397

(from H-5078(WD), 1930)

Reported to be an obstruction, 31 feet, (grounded depth) at 40° 52' 37.5" N, 73° 41' 48.6" W.

AREA SURVEYED

The item was investigated on JD's 296-322 using side scan sonar, echo sounder, and diver investigation. During the initial 200% side scan coverage, two contacts were identified for further investigation. The item labeled as site B on the boat sheet was diver investigated on 18 November, 1986 (JD 322), dive number 9. The divers reported the steel remains of a badly deteriorated wreck approximately 6-7 meters long by 2 meters wide. A least depth of 41.0 feet was obtained on an iron ribbing at (D.P. 5749) 40° 52' 32.23" N, 73° 41' 52.42" W, LORAN-C rates 26917.6, 43932.4, by pneumofathometer. The least depth corrected for ~~predicted~~ smooth tides is 3[illegible] feet.

The item labeled as A on the boat sheet was diver investigated on 5 December, 1986 (JD 339), dive number 10. The divers reported finding a highly deteriorated wooden wreck, 5 meters in diameter, rising 3-4 feet off the bottom. The least depth as determined by pneumofathometer is 38.0 feet. The least depth corrected for ~~predicted~~ smooth tides is 3[illegible] feet. The position of the wreck is (D.P. 823) 40° 52' 33.53" N, 73° 41' 53.69" W. No LORAN-C rates were taken.

COMPARISON WITH PRIOR SURVEYS

This item was compared with prior survey 5545 of 1934. The surveyed depths in the area compare well with the prior survey.

COMPARISON WITH THE CHART

This item was compared with Chart 12366, 19th edition of February 4, 1984, 1:20,000. Charted soundings were transferred to the boat sheet prior to the beginning of any survey work for on-line evaluation. The present survey soundings compare well with the charted soundings.

RECOMMENDATIONS

The hydrographer recommends that the following changes be made to the charting data base:

1) Delete the current charting symbol for AWOIS item 4397 - Do not concur.

2) For item A, chart a wreck symbol over which a depth is known, ~~not a hazard to navigation,~~ as per Section O, Item 15 in NOS Chart No. 1, 8th edition, November 1984, using the present survey position and the pneumofathometer depth corrected for smooth tides. - Concur

3) For item B, chart a wreck symbol over which a depth is known, ~~not a hazard to navigation,~~ as per Section O, Item 15 in NOS Chart No. 1, 8th edition, November 1984, using the present survey position and the pneumofathometer depth corrected for smooth tides. - Concur

See section 7.a.9) of the Evaluation Report.

See section 7.a.1) of the Evaluation Report.

AWOIS # 1729

(from N.T.S. H.#40 of 1956)

Described as a sailboat, 18 ft long, in 50 feet of water, 1900 yards, 040 degrees from Execution Rocks Lighthouse in Latitude 40° 53' 24" N, 73° 43' 30" W. Disproval requirements were 400% side scan sonar coverage for a minimum radius of 750 meters.

AREA SURVEYED

This item was investigated on JD's 288-307 using side scan sonar, echo sounders, divers, and constant tension wire drag. After an initial 200% coverage using side scan sonar, four contacts were found by the hydrographer which were deemed significant.

The contact listed as Item A on the boat sheet was diver investigated on 27 October, 1986 (JD 300), dive number 1, and was found to be a 19-foot white sailboat resting with the stern buried in the bottom with no mast located at (D.P. 5572) 40° 53' 35.38" N, 73° 43' 26.92" W, LORAN-C rates 26933.4, 43944.5 at a pneumofathometer depth of 43.4 (raw) feet at the highest point on the bow. ~~The predicted stage of tide at the time was 3.0 feet making~~ The actual depth corrected for ~~predicted~~ smooth tides 40.~~4~~ feet. The need for the remaining 200% coverage was deemed unnecessary. Concur

Item B on the boat sheet was diver investigated on 29 October, 1986 (JD 302), dive number 6. The divers could find no trace of the contact indicated on the sonargram. The sonargram indicated wreckage rising 1-2 feet above the bottom. The hydrographer believes this item to be insignificant and therefore not worthy of charting. Concur

Item C on the boat sheet was a 'donut' shaped contact indicated on the sonargram. This item was diver investigated on 29 October, 1986 (JD 302), dive number 5. The dive did not indicate any type of obstruction but the divers did find what appeared to be a compect population of marine life. There are numerous similar 'donuts' throughout all survey areas and all available information has been passed on to Woods Hole for evaluation. (See also section 7.a.1) - AWOIS Item 9400 - of the Evaluation Report for remarks on the "donut" shaped contacts.

Item E on the boat sheet was diver investigated on 3 November, 1986 (JD 307), dive number 7. The divers reported finding a highly deteriorated wooden wreck with several timbers protruding above the bottom. The divers obtained a least depth using the pneumofathometer of 66.0 feet. The depth corrected for ~~8.0 predicted~~ smooth tides is 5~~8~~6.~~0~~ feet. Because of the limited visibility and the deterioration of the wreck, is was decided that DSF drift soundings should be run. A DSF least depth of 59.0 feet (corrected for predicted tides, draft, and velocity) was obtained on 3 November, 1986 (JD 307) at (D.P. 5591) 40° 53' 19.00" N, 73° 43' 17.88" W, LORAN-C 26931.4, 43941.5, indicating a rise above the bottom of 4-6 feet.

COMPARISON WITH PRIOR SURVEYS

also H-1732a is common

This item was compared with prior survey 5545 from 1934. The reconnaissance DSF soundings agreed well with the prior survey.

COMPARISON WITH THE CHART

Soundings from Chart 12366, 19th edition of February 4, 1984, 1:20,000, were transferred to the boat sheet before any investigation was done to ensure on-line comparison with the chart. The surveyed depths agree well with charted depths indicating that the majority of the depths probably came from prior survey 5545.

RECOMMENDATIONS

It is recommended by the hydrographer that the following changes be made to the charting data base:

1) Delete the current charting symbol for AWOIS item 1729. Concur

2) For item A, chart a wreck symbol over which a depth is known, ~~not a hazard to navigation,~~ as per Section O, Item 15 in NOS Chart No. 1, 8th edition, November 1984, using the present survey position and the pneumofathometer depth corrected for smooth tides. Concur

3) For item E, chart a wreck symbol over which a depth is known, ~~not a hazard to navigation,~~ as per Section O, Item 15 in NOS Chart No. 1, 8th edition, November 1984, using the present survey position and the pneumofathometer depth corrected for smooth tides. Concur

4) For items B and C, no chart symbol is required. Concur

See section 7.a.1) of the Evaluation Report.

See section 7.a. 13) of the Evaluation Report.

AWOIS # 4417 SHEET # R/H 10-02-86

1) EXPECTED FEATURE

(from H-5078 wp, 1936)

AWOIS item 4417 was reported as a rocky area, pyramid in shape, 10 to 15 meters at the base, 33 ft., scaled in at LAT. 040° 49' 59.0" N, LONG. 073° 46' 46.5" W. Charted as cleared to 32 ft. A 44 ft. was found approximately 10 meters to the north.

2) AREA SURVEYED

The AWOIS listing (dated April 1, 1986) called for a 75 meter radius search centered around the charted position. Verification or Disproval by side scan sonar, wire drag, or diver investigation was required.

Like the investigation of AWOIS item 4416, this investigation was conducted in three phases. The first part of the investigation run on DOY 274 (October 1, 1986) was the initial 200% side scan sonar work. During this phase two shoal areas were discovered. One in the vicinity of the charted AWOIS item and the other located approximately 200 meters to the north. Because diving operations were not possible in this area, a DSF echo-sounder development was performed to identify the shoalest points of these areas. Hydrographic lines were run at 7-8 meter spacing on DOY 281-282 (October 8-9, 1986)to essentially provide 100% sonification to adequately define the shoals. The two shoals (identified as 4417A and 4417B) were adequately defined but, no indication of the reported 33 ft. rock was found. Item 4417A located 30 meters to the west of the charted AWOIS item had a depth of 37.~~2~~ ft. (corrected for draft and ~~predicted~~ smoothed tides and velocity of sound). Item 4417B located 190 meters to the north had a corrected depth of 51.~~2~~ feet. To ensure that AWOIS item 4417 was not a pinnacle type rock missed during the DSF development, a number of constant tension wire drags were performed over the two suspect areas. Only the deepest clearance strip and the hang strip were plotted over each of the items. The deepest clearance strip over item 4417A(Strip 2, DOY 316) was reduced to an effective depth of 3~~6~~.~~2~~ ft. The hang strip (Strip 3, DOY 316) was reduced to an effective depth of 3~~8~~.~~2~~ ft. at the time the hang was identified. ~~Since the wire drag covered the charted AWOIS item and the surrounding shoal, and the clearance depth is deeper than the reported AWOIS item depth, it can be said that the reported 33 ft. sounding should be a 35.9 ft sounding. This is the shoalest point of this development.~~ Do not concur

The deepest effective clearance strip over item 4417B (Strip 3,DOY 329) was reduced to an effective depth of 4~~4~~.~~5~~ ft. and the hang strip (Strip 4,DOY 329) was reduced to an effective depth of 4~~8~~.~~5~~ ft. at the time of the hang. As was the case with AWOIS 4416, the hang strips plot approximately 20-30 meters past the intended hang point. Several attempts to take a detached positions on the shoals were made but, as was the case with AWOIS 4416, no luck was to be had. Therefore, the recommended position for charting purposes are taken from the hydro development data position control records. Due to the

relative instability of the wire, it is also recommended that the depth used for charting purposes be that of the deepest clearance depth of ~~45.5~~ ft(~~after corrected for smooth tides~~). Concur

3) COMPARISON WITH PRIOR SURVEY

Soundings form Hydrographic survey No. 5547 (June-August, 1934, 1:10,000 scale) were compared against hydrographic data gathered during the investigation of this item. Thirteen soundings were from the prior survey were compared with the sounding plot. Even though none of the soundings fell directly on top of the data gathered during the project an apparent shoaling of 2-4 feet can be observed throughout the survey area. It is suspected by the hydrographer that sedimentation has occurred in this area. This would tend to follow in line with the trend seen on AWOIS 4416.

4) COMPARISON WITH THE CHART

Soundings from chart 12366 (19th Edition,Feb. 4/84, 1:20,000 scale) were compared against hydrography gathered during this investigation. Only four soundings fell within the limits of the area under investigation. None of these soundings fell on or near any of the sounding data gathered and no comparison could be performed.

5) DIVE REPORT

No dives were conducted on this AWOIS item investigation due to the high levels of pollutants in the surrounding waters.

6) RECOMMENDATIONS

~~It is recommended that item 4417A be charted as a rock wire drag cleared to 35.9 ft. corrected for smooth tides, per Section D, item 6a in NOS Chart No. 1, Eighth Edition, November 1984 at LAT. 040° 49' 50.87" N, LONG. 073° 46' 47.80" W.~~ Based on the amount of deep draft vessel traffic in this area, this item should be considered a hazard to navigation. ~~Concur~~ Do not concur

Item 4417B should be added to the next edition of Charts 12366 and 12363 and charted as ~~a~~ dangerous submerged rock wire drag cleared to ~~45.5~~ ft. corrected for smooth tides per Section D item 5 in NOS Chart No. 1, Eighth Edition, November 1984, at LAT. 040° 50' 05.20" N, LONG. 073° 46' 44.80" W. For the same reasons as previously listed, this item should be charted as a hazard to navigation. Concur

~~The current AWOIS item 4417 should be removed from future editions of charts 12366 and 12363 and replaced by the afore mentioned items.~~ Do not concur

In addition, the observed shoaling should be considered when planning future hydrographic operations in this area. Concur

See section 7.a. 13) of the Evaluation Report.

See section 7.a.14) of the Evaluation Report.

AWOIS # 4418 SHEET # R/H 10-02-86

1) EXPECTED FEATURE

(from H-5078 and 1930)

AWOIS item 4418 was reported as a rocky 27 ft. deep reef, charted as rock cleared to 25 ft. scaled in at LAT. 040° 50' 12.0" N, LONG. 073° 46' 40.0" W. A 27 ft developed, a 32 ft found 10 meters to the NW, the 27 ft. carried forward.

2) AREA SURVEYED

The AWOIS listing (dated April 1, 1986) called for a 75 meter radius search centered around the charted position. Verification or Disproval by side scan sonar, wire drag, or divers investigation was required.

200% required

This investigation was conducted in three phases. The initial 200% (DOY 274) side scan sonar was performed first. During this phase two shoal areas were initially identified. Without the option of dive operations, a DSF echo-sounder development was performed to adequately develop the shoal areas. Hydrographic lines (DOY 282,293-294) were run at 7-8 meter spacings to essentially provide 100% sonification of the bottom. Of the two shoals (hereby delineated as 4418A and 4418B), 4418A plots approximately 15 meters west of the charted position of AWOIS 4418 and was reduced to a depth of 25.5 ft.(Reduced for tides, draft,velocity,instr. error) Item 4418B plots approximately 88 meters southeast of the charted AWOIS item and was reduced to a depth of 28.5 ft. To ensure that no pinnacle shaped obstructions were overlooked during the DSF developement, constant tension wire drags were performed over the two shoal areas. Only the deepest clearance strip and the hang strip were plotted for item 4418A. On item 4418A the deepest(DOY 329) clearance strip had a effective depth (reduced for tides and lift) of 27 ft. The hang strip (DOY 329) on item 4418A had a effective depth of 30.5 ft. at the time of the hang. This clearly shows a depth deeper than that seen on the DSF development. It is the opinion of the hydrographer based on the side scan sonar and DSF data collected that the groundwire was not hanging when it should have and was most likely riding up over the shoal due to it's form and shape. It is the opinion of the hydrographer that the DSF development depth and position are adequate and should be used for charting purposes. Concur

The constant tension launch wire drag was disregarded for 4418A

On item 4418B the deepest effective clearance strip (DOY 329) had an effective depth of 36.5 ft. No hang was observed at depths far deeper than the DSF developed depth. As was the case with 4418A, it is felt that the wire was simply riding over the shoal and would not hang on the obstruction. During one of the attempted hang strips, an excessive amount of lift was observed at a point which corresponded to the expected hang. Since the information from the wire drag of 4418B proved of little value in determining the nature of the item, it was not plotted. Several attempts were made to obtain a DP on the shoals and proved to be not possible due to reasons previously explained. The recommended position is a scaled position obtained from the graphic and position control record. It is the opinion of the

The constant tension launch wire drag was disregarded for 4418 B.

hydrographer that the DSF development depth and position are adequate and should be used for charting purposes. Concur

3) COMPARISON WITH PRIOR SURVEY

Soundings from Hydrographic survey No. 5547 (June-August, 1934, 1:10,000 scale) were compared against hydrographic data gathered during the investigation of this item. Twelve soundings were compared between the prior survey and the sounding plot. Although no soundings fell exactly on top of the data gathered during this project, an apparent shoaling o 2-5 feet can be seen throughout the area. It is suspected as was the case with AWOIS items 4416 & 4417, that sedimentation has occurred in the area.

4) COMPARISON WITH CHART

A chart comparison between chart 12366 and data gathered during this projected was attempted. Only three soundings fell within the area of work done. No meaningful chart comparison could be performed with the chart.

5) DIVE REPORT

No dives were performed on this AWOIS item due to the high levels of pollutants in the surrounding waters.

6) RECOMMENDATIONS

AWOIS item 4418(A) was located and it is recommended that it remain charted as is with the exceptions that the new position of LAT. 040° 50' 11.92" N LONG. 073° 46' 40.57" N be used for charting purposes and the depth of 28.5 ft. corrected for smooth tides replace the existing 25.0 ft. wire drag clearance. Concur

The above chart symbol is adequate to cover the additional shoal discovered to the southwest so no additional recommendation is required for item 4418B. It's position is LAT. 040° 50' 09.86" N LONG. 073° 46' 37.93" W and it's depth is 28.4 ft. corrected for predicted tides,draft,instr error,and velocity. Do not concur

As was the case with AWOIS 4416 & 4417, the apparent shoaling should be taken into account when future hydrographic operation are planned in this area. Concur

See section 7.a. 14) of the Evaluation Report.

See section 7.a.5. of the Evaluation Report.

AWOIS # 4387 SHEET R/H 10-02-86

1) EXPECTED FEATURE

AWOIS item 4387 was reported as scrap iron, 900 tons reported sunk on 12/20/59 in about 68 ft. of water by Red Star Towing and Trans Co. between Hart Island and Stepping Stones Light at LAT. 040° 50' 06.00" N, LONG. 073° 46' 12.60" W. Barge loaded with metal shavings believed not to be a hazard to navigation. Cleared by 52 ft. hung at 54 ft. by FE-174, 1960

2) AREA SURVEYED

The AWOIS listing (dated April 1, 1986) called for a 75 meter radius search area centered around the charted position. Verification or Disproval by side scan sonar, wire drag, or diver investigation was required.

This investigation was conducted in two phases. The first phase (DOY 275) was the initial 200% side scan sonar investigation. (400% required) No significant contacts were seen during this portion of the investigation. The second phase was the running of hydrographic sounding lines between the previously run side scan sonar lines (DOY 294-295). Lines were split down to 15 meters providing approximately 100% sonification of the bottom. As was the case with the side scan sonar, no significant contacts were seen. In general, bottom depths were in the mid 60's(ft.) and, the bottom was flat in nature, sloping toward shoal areas. No indication of the reported 900 tons of metal shavings was evident. An attempt to find if the material had been salvaged showed that the Red Star Towing and Trans Co. was no longer in business. Inquires by the RUDE & HECK to resolve the status of the debris proved fruitless.

3) COMPARISON WITH PRIOR SURVEY

Soundings from Hydrographic Survey No. 5546 (H-5547 is also common) (June-July, 1934, 1:10,000 scale) were compared against hydrographic data gathered during the investigation of this AWOIS item. Ten soundings from the prior survey were compared. As is the case with other items on this sheet, an apparent shoaling of 2-3 feet is seen in the area. Although no soundings fell directly on top of data gathered during this project, this apparent shoaling follows the trend seen throughout the project area.

4) COMPARISON WITH CHART

Soundings from Chart 12366 (19th Edition, Feb. 4/84, 1:20,000 scale) were compared against data collected during the investigation of this AWOIS item. Three soundings fell within the area of work on this item. No meaningful comparison can be performed with this chart.

5) DIVE REPORT

No dives were performed on this AWOIS item due to high levels of pollutants in the surrounding waters.

6) RECOMMENDATIONS

AWOIS item 4387 is not considered disproved by 200% side scan sonar and DSF development. ~~It is recommended that the charted AWOIS item be removed from the next edition of charts 12366 and 12363 as it poses no hazard to navigation and replaced with a sounding representative of the area.~~ Do not concur

In addition, the apparent shoaling should be considered when planning future hydrographic survey operations in this area. Concur

See section 7.a. 5) of the Evaluation Report.

See section 7.a. 6) of the Evaluation Report.

AWOIS # 4388 SHEET R/H 10-02-86

1) EXPECTED FEATURE

(by FE-174, 1960)

AWOIS item 4388 was reported as an obstruction, cleared by 54 ft. hung at 61 ft. at LAT. 040° 50' 06.60" N, LONG. 073° 46' 15.00" W. This item is not considered a hazard to navigation and was not charted.

2) AREA SURVEYED

The AWOIS listing (dated April 1, 1986) called for a 75 meter radius search area centered around the charted position. Verification or Disproval by side scan sonar, wire drag, or diver investigation was required.

100% required

This investigation was conducted in two phases. The first phase (DOY 275) was the initial 200% side scan sonar investigation. No significant contacts were seen during this portion of the investigation. The second phase was the running of hydrographic sounding lines between the previously run side scan sonar lines (DOY 294-295). Lines were split down to 15 meters which provided approximately 100% sonification of the bottom. As was the case with the side scan sonar, no significant contacts were seen. In general, the bottom was flat in nature, sloping toward shoal areas. Depths generally ranged from 60 -65 ft. around this item. No indications of depths shoaler then this were evident. It is suspected that based on the closeness of the hang depth to the bottom depth, that a bottom touch may have in fact occurred and not a hang

3) COMPARISON WITH PRIOR SURVEY

H-5547 is also common

Soundings from Hydrographic Survey No. 5546 (June-July, 1934, 1:10,000 scale) were compared against hydrographic data gathered during the investigation of this AWOIS item. Ten soundings from the prior survey were compared. Evidence of shoaling is less apparent in the vicinity of this item but in areas near and around the item the shoaling can be more readily seen. The shoaling is between 2-3 ft. in general.

4) COMPARISON WITH CHART

Soundings from Chart 12366 (19th Edition,Feb. 4/84, 1:20,000 scale) were compared against data collected during the investigation of this AWOIS item. Three soundings fell within the area of work on this item. No meaningful comparison can be performed with this chart.

5) DIVE REPORT

No dives were performed on this AWOIS item due to high levels of pollutants in the surrounding waters.

6) RECOMMENDATIONS

DIVER'S ITEM INVESTIGATION REPORT
OPR-B660-RU-86

ITEM: Contact near AWOIS #1729 FIELD SHEET: R/H 10-03-86(C)

STATE/COUNTY: New York/Nassau SUB-LOCALITY:Western Long Island Sound

DATE: November 03, 1986 JD: 307 SHIP/LAUNCH: NOAA Ship RUDE (9040)

DIVEMASTER: LTJG A. Francis DIVERS: A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1607	1648		
UNDER WATER	1610	1650		
ON SURFACE	1628	1655		
IN BOAT	1632	1658		
DIVE DURATION	18	05		
MAXIMUM DEPTH	85FSW	80FSW		

POSITION (If negative report, center of search area)

LAT: 040° 53' 19.00" N LONG: 073° 43' 17.88" W

POSITION NO.5589,5590,5591 VISIBILITY HOR.0 Ft. VERT.0 Ft.

CURRENT Approx 1 Kt.

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1652

1. PNEUMO DEPTH 66.0 FT.
2. PNEUMO CORR. 0.0 FT.
3. FT. 66.0

PNEUMO S/N 8606822N (0-140FSW GAGE) TIDE CORR.-8.0 FT.

TARGET FEATURE: Vessel ruins LEAST DEPTH:58.0 FT.MLLW

REMARKS:

A marker buoy was deployed and a divers circle search was initiated. Approximately 10 meters out from the buoy, divers discovered the ruins of an old wooden vessel. A series of least depths was taken on what divers discovered to be the shoalest feature on the ruins. s.

Pneumofathometer Field Sheet

PROJECT B660-RU-86 DOY 302 SHEET R/H 10-3-86

****

A) ITEM # 1731 SITE LETTER F

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	1517	42.4	-5.5	36.9
2)	1517	42.4	-5.5	36.9
3)	1517	42.4	-5.5	36.9
4)	1517	42.4	-5.5	36.9

Average Least Depth 36.9

B) ITEM # ____ SITE LETTER ____

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	_____	____	____	____
2)	_____	____	____	____
3)	_____	____	____	____
4)	_____	____	____	____

Average Least Depth _____

DIVE 1 10-03 # 3

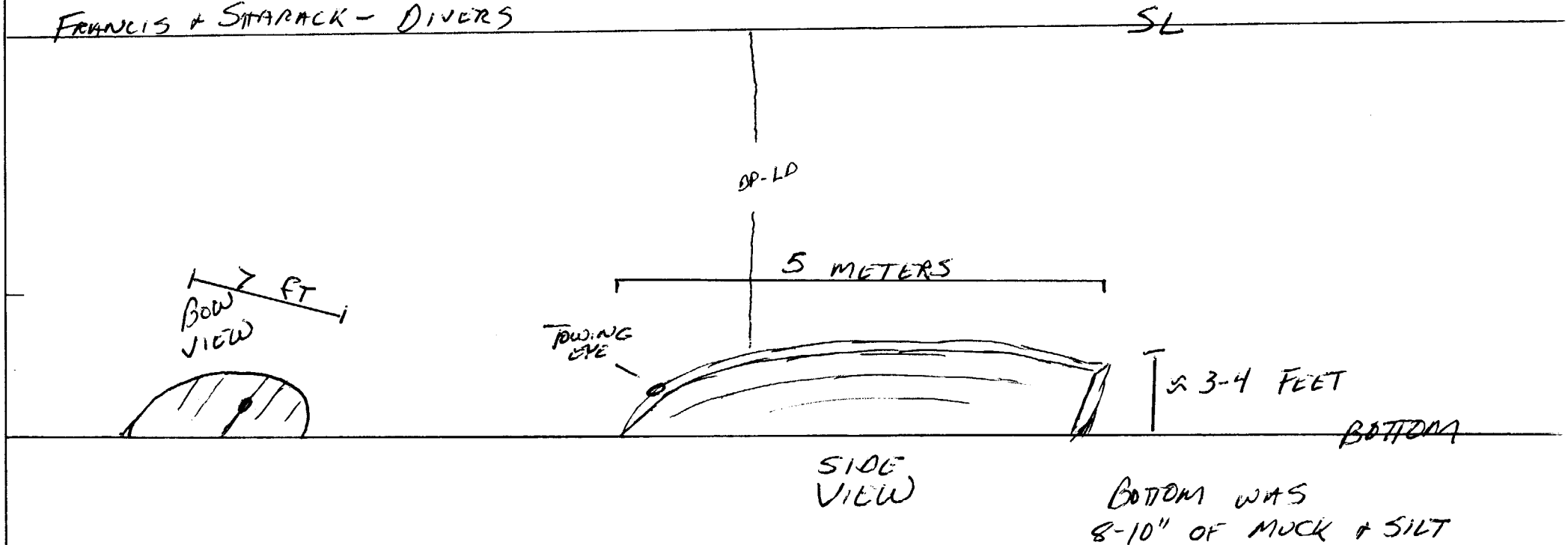
B660

NEAR AWOIS #1731

R/H - 10-03-86

DOY - 301 (OCTOBER 28, 1986)

FRANCIS & SHARACK - DIVERS



BOTTOM WAS
8-10" OF MUCK & SILT

DIVE INVESTIGATION REPORT
OPR-B660-RU/HE-86
R/H 10-03-86

DIVE NUMBER: FIVE DIVE DATE: October 29, 1986 (DOY 302)

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Island Sound

B. POSITION: 5582 LATITUDE: 040° 53' 49.85" N
LONGITUDE: 073° 43' 26.64" W

C. METHOD OF POSITIONING: Mini-Ranger Falcon 484 (Range/Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: Contact near AWOIS 1729

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): Side scan sonar record

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.): N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS: N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): Side Scan Sonar investigation first identified the contact. The contact appeared as a "donut" shape. Several were seen in the work area and the decision was to investigate them. No relief was seen on any of the donuts.

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.)

A circle search of 25 meters was performed around a marker buoy deployed on the dive site.

C. KNOWN REFERENCE TO FEATURES NEARBY: Northwest of Execution Rocks approximately 1800 meters.

D. AREA AND DEPTHS COVERED: General depths were mid 50's to 60 ft. as observed by divers depth gauge

IV. DIVE DATA

A. DIVERS: A. Francis, K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1542
ELAPSED: 21 min

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION): Gemeral bottom depths were mid 50's to 60 ft. determined by divers submersible depth gage.

D. CURRENT AND CONDITIONS: Current was stronger at surface than at the bottom. Current ranged from 1-2 kts.

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
Hor: 1 ft. Ver: 1-2 ft.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Muck

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): 5582

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: 1650

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): 37.1/5582 (By DSF)

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): By DSF echo-sounder

B. DESCRIPTION OF FINDINGS: A circle search was performed through a radius of 25 meters. No noticable relief was identified and no contacts were seen or hung by the search line. A further review of the SSS trace makes the hydrographer feel that the contact seen on the trace is infact a change of bottom texture causing a change in reflectivity. Although no distinctive change in texture was seen(e.g. mud to rock) a large area of marine life(crabs) living in the bottom was seen on two seperate areas of the search radius. This densely covered area may be the cause of the change in reflectivity. As no relief is seen on the SSS trace and none was found during the circle search, It is the opinion of the hydrographer and the commanding officer that no further investigation is necssary. This contact poses no hazard to navigation.
See also the discussions for Item 4400 in section 7.a.11) of the Evaluation Report.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE):
See attached Sketch

D. UNUSUAL CONDITIONS: Very low visibility,Dense marine life on bottom

VI. CHARTING RECOMMENDATIONS

~~POSITION LAT. 040° 53' 49.85" N LONG. 073° 43' 26.64" W~~

~~REDUCED DEPTH: 41.7 FT.~~

TYPE OF FEATURE (REFERENCE CHART NO.1):

Bottom texture change, no recommendation necessary

DIVER'S ITEM INVESTIGATION REPORT

OPR-B660-RU/HE-86

ITEM:CONTACT NEAR AWOIS 1729 FIELD SHEET: R/H 10-03-86

STATE/COUNTY: New York/Nassau SUB-LOCALITY: Western Long Island Sound

DATE:October 29, 1986 JD: 302 SHIP/LAUNCH:NOAA Ship RUDE (9040)

DIVEMASTER: LTJG A. Francis DIVERS:A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1540			
UNDER WATER	1542			
ON SURFACE	1603			
IN BOAT	1607			
DIVE DURATION	21 min			
MAXIMUM DEPTH	60 ft.			

POSITION (If negative report, center of search area)

LAT: 040° 53' 49.85" N LONG: 073° 43' 26.64" W

POSITION NO. 5582 VISIBILITY HOR.1-2 ft. VERT.1-2 ft.

CURRENT 1-2 knots

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1650/37.1

1. PNEUMO DEPTH -- FT.
2. PNEUMO CORR. N/A FT.
3. FT. N/A

PNEUMO S/N: N/A TIDE CORR.-3.0 FT.

TARGET FEATURE: Bottom Texture Change LEAST DEPTH: 41.7 MLLW

REMARKS

A circle search was performed around a marker bouy deployed by the NOAA Ship RUDE. No contacts were seen and no least depth was taken with the pneumofathometer. A detached position and DSF depth was taken to identify the center of the search area. See dive report dated October 29, 1986 for further details and sketch.

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

DATE: OCTOBER 29, 1986 (004 302) UNIT: NOAA SHIP RUDE (9040)

LOCATION: WESTERN LONG IS. SOUND

DIVEMASTER: FRANCIS SCIENTISTS:

TENDERS: OS LEWIS, SS STYRON, LT Humphrey

DIVE PLAN: Perform Cycle Search around marker buoy deployed by RUDE Take L/D + DP ON any contacts found

MAX. DEPTH: 60
MAX. TIME: 60 MIN

EQUIPMENT USED: SCUBA - OPEN CIRCUT - AIR

CONDITIONS:

WIND: 10-15 KTS
SEAS: 1-2 FT
CURRENT: 1-2 KTS

VISIBILITY: 1 FT. - H_2O
AIR TEMP.: 68°F
WATER TEMP: 58°F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME (UTC) IN / OUT	BOTTOM TIME	DEPTH	GROUP
① FRANCIS	—	—	—	2900 / 2500	400	1515 / 1524	9	57	B
① SHARACK	—	—	—	2900 / 2300	600	1515 / 1524	9	57	B
				/		/			
② FRANCIS	18 MIN	B	17	2800 / 1000	1800	1542 / 1603	21	60	G
② SHARACK	15 MIN	B	17	2900 / 1100	1800	1542 / 1603	21	60	G
				/		/			
③ FRANCIS	122 MIN	D	24	2600 / 1000	1600	1805 / 1827	22	60	H
③ SHARACK	122 MIN	D	24	3000 / 1000	2000	1805 / 1827	22	60	H

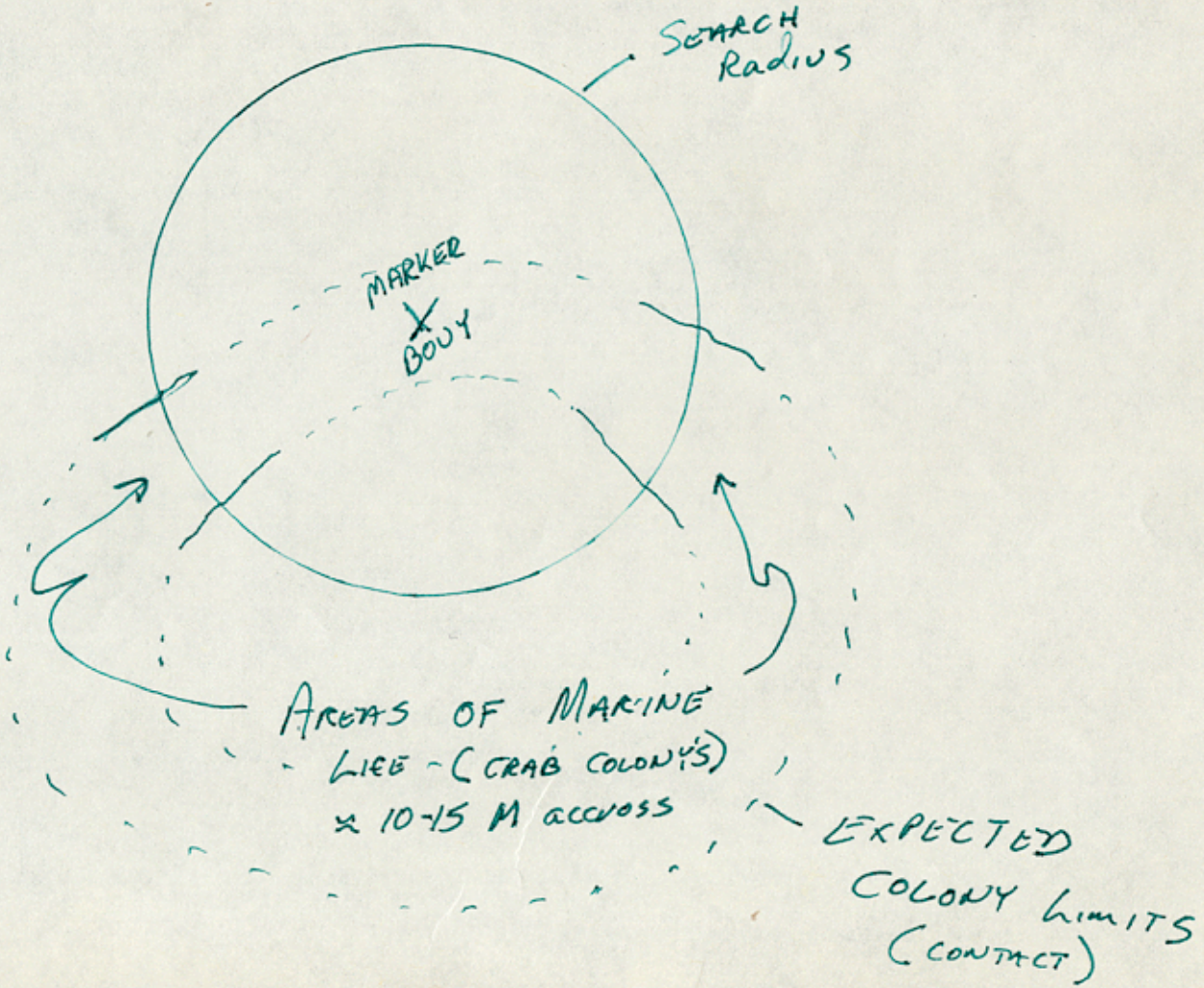
POST DIVE COMMENTS: DIVE #2 - LEAST DEPTH & D.P. TAKEN ON CONTACT - A 17' Power Boat, overturned, protruding 4 Ft off BOTTOM. DIVE # 2 INVESTIGATE DONUT SHAPE CONTACT) - Notable TEXTURE CHANGE LOW VIS, ONLY NOTICED AREA OF DENSE CRAB POPULATION IN AREA OF NO BOTTOM LIFE - (maybe ?) DIVE # 3 - LOOKING FOR possible boat - 20 m search performed - ran out of B.J. prior to finishing 30 m search

DIVEMASTER SIGNATURE

EXHIBIT 2

B660-86
R/H 10-03-86
October 29, 86 (DOY 302)
Dive # 5

Top View



DIVER'S ITEM INVESTIGATION REPORT

OPR-B660ORU/HE-86

ITEM: Contact near AWOIS 1729 FIELD SHEET: R/H 10-03-86

STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Island Sound

DATE: October 29, 1986 JD: 302 SHIP/LAUNCH: NOAA Ship RUDE (9040)

DIVEMASTER: LTJG A. Francis DIVERS: A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1800			
UNDER WATER	1805			
ON SURFACE	1827			
IN BOAT	1833			
DIVE DURATION	22 min			
MAXIMUM DEPTH	60 ft.			

POSITION (If negative report, center of search area)

LAT: 040° 53' 46.06" N LONG: 073° 43' 57.37" W

POSITION NO. 5578 VISIBILITY HOR. 1-2 ft. VERT. 1-2 ft.

CURRENT 1-2 kts.

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH N/A

1. PNEUMO DEPTH N/A FT.
2. PNEUMO CORR. N/A FT.
3. FT. N/A

PNEUMO S/N: N/A TIDE CORR. N/A FT.

TARGET FEATURE:N/A LEAST DEPTH: N/A MLLW

REMARKS

Target not found on 20 meter search radius. Future dive to resolve target. See dive report dated October 29, 1986 for further details.

DIVE INVESTIGATION REPORT
OPR-B660-RU/HE-86
R/H 10-03-86

DIVE NUMBER: ONE DIVE DATE: October 27, 1986 (DOY 300)

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY:Western Long Island Sound

B. POSITION: LATITUDE: 40° 53' 35.38
LONGITUDE: 073° 43' 26.92

C. METHOD OF POSITIONING: Mini-Ranger Falcon 484 (Range/Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: 1729

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): N/A

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.):N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS:N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT :Side Scan Sonar Development

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.)

A marker buoy was deployed on the determined position and divers conducted a circle search around the marker bouy. The item was found 10 meters from the marker bouy site.

C. KNOWN REFERENCE TO FEATURES NEARBY: Northwest of Execution Rocks approximately 1900 meters.

D. AREA AND DEPTHS COVERED: An area of ten meters in radius was partially covered until the known target was found. General depths were 50 ft.(fsw).

IV. DIVE DATA

A. DIVERS: LT(jg) A. Francis, JST K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1850
ELAPSED: 28 MIN

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION): General depths were 50 feet.

D. CURRENT AND CONDITIONS: Light current, cold water

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
Hor.- 0.5 ft. Vertical- 1.0 ft.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Soft muck like bottom

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): Position number: 5572

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: 1910z

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH):43.4 ft. POS # 5572

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. THE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): Pneumofathomer

B. DESCRIPTION OF FINDINGS: A small sailboat, 19 feet in length was found. The boat was resting rightside up, with the stern resting deep in the bottom. The highest point on the boat was the forward most edge of the bowsprit, which was in good condition. The boat has a white hull and no name was seen on the vessel. The mast was not present on or around the boat.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE):

Length: 19 feet
Width: 7 feet

D. UNUSUAL CONDITIONS: Limited visibility made locating and investigating the feature very difficult.

VI. CHARTING RECOMMENDATIONS

POSITION LAT. 40° 53' 35.38" N LONG. 073° 43' 26.92" W

REDUCED DEPTH: 40.4 ft.

TYPE OF FEATURE (REFERENCE CHART NO.1): Wreck symbol over which depth is known, ~~not a hazard to navigation~~ per Section O item 15 in NOS Chart No. 1, Eighth Edition, November 1984.

See the discussions for Item 1729

DIVE INVESTIGATION REPORT
OPR-B660-RU/HE-86
R/H 10-03-86

DIVE NUMBER:FOUR DIVE DATE: October 29,1986 (DOY 302)

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY:Western Long Island Sound

B. POSITION: 5581 LATITUDE: 040° 53' 51.43" N
LONGITUDE: 073° 43' 04.66" W

C. METHOD OF POSITIONING:Mini-Ranger Falcon 484 (Range/Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: Contact near AWOIS 1731

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): Side scan sonar record

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.): N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS: N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT):Side Scan Sonar investigation originaly identified the target

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.)
A circle search was conducted around a marker buoy.

C. KNOWN REFERENCE TO FEATURES NEARBY: Approximately 3000 meters northeast of Execution Rocks.

D. AREA AND DEPTHS COVERED: Depths in general were around 60 FT. as observed by divers submersible depth gauge.

IV. DIVE DATA

A. DIVERS: A. Francis, K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1515
ELAPSED: 9 min

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION):Generaly depths were 60 feet

DIVER'S ITEM INVESTIGATION REPORT
OPR-B660-RU/HE-86

ITEM:AWOIS 1729 FIELD SHEET: R/H 10-03-86

STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Island Sound

DATE:October 27, 1986 JD:300 SHIP/LAUNCH: RUDE(9040)

DIVEMASTER:Francis DIVERS:Francis, Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1848	1937		
UNDER WATER	1850	1939		
ON SURFACE	1518	1955		
IN BOAT	1520	2000		
DIVE DURATION	28	16		
MAXIMUM DEPTH	50	60		

POSITION (If negative report, center of search area)

LAT: 040° 53' 35.38" N LONG: 073° 43' 26.92" W

POSITION NO. 5572 VISIBILITY HOR.0.5 ft. VERT.1.0 ft.

CURRENT 0 kts.

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1910

1. PNEUMO DEPTH 43.6FT.
2. PNEUMO CORR. 0 FT.
3. 43.6 FT.

PNEUMO S/N: 8607004N (0-70 fsw gage) TIDE CORR.-3.0 FT.

TARGET FEATURE:Small sailboat LEAST DEPTH: 40.4 FT. MLLW

REMARKS: A small sailboat, 19 feet long by seven feet wide was found. The boat was in good condition, and was resting rightside up on the bottom. The stern of the boat was embedded into the bottom deeper than the bow, and a least depth of 43.6 (MLLW) was taken on the forward most edge of the boats bowsprit. The mast was not seen on or around the boat. The boat rises to a height of approximately five feet off the bottom. Based on discription and location this find is considered to be AWOIS number 1729 and should be charted as a wreck with known depth over it, ~~not a hazard to navigation.~~

See the discussions for Item 1729

DIVE INVESTIGATION REPORT
OPR-B660-RU/HE-86
R/H 10-03-86

DIVE NUMBER: SIX DIVE DATE: October 29, 1986 (DOY 302)

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY:Western Long Island Sound

B. POSITION: 5578 LATITUDE: 040° 53' 46.06" N
LONGITUDE: 073° 43' 57.37" W

C. METHOD OF POSITIONING: Mini-Ranger Falcon 484 (Range/Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: Contact near AWOIS 1729

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): Side scan record

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.): N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS: N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): Side Scan Sonar originally identified the contact.

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.)

A marker buoy was deployed and a circle search of 20 meters was performed.

C. KNOWN REFERENCE TO FEATURES NEARBY: Northeast of Execution Rocks

D. AREA AND DEPTHS COVERED: General depths were 55-60 ft. as observed on the divers submersible depth gauge.

IV. DIVE DATA

A. DIVERS: A. Francis, K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1805
ELAPSED: 22 min

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION): General depths were 55-60 ft. determined by divers submersible pressure gage.

D. CURRENT AND CONDITIONS: Current was 1-2 kts at surface an 1 kt on bottom.

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
Hor: 1 ft. Ver: 1-2 ft.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Muck

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): 5578

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: 1517

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): N/A

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): N/A

B. DESCRIPTION OF FINDINGS: A 20 meter radius search was conducted and no contact was found. During the 30 meter radius search the divers used up all thier allowable bottom time and were forced to abort the remainder of the dive prior to completion of the 30 meter search. A follow up dive will be performed at a latter date to resolve the contact. A detached position was taken on the marker buoy to denote the center of the search area. No least depth was taken.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE):
N/A

D. UNUSUAL CONDITIONS: Very low visibility, moderate current, water very cold.

VI. CHARTING RECOMMENDATIONS

POSITION LAT. LONG.

REDUCED DEPTH: N/A

TYPE OF FEATURE (REFERENCE CHART NO.1):
N/A

DIVER'S ITEM INVESTIGATION REPORT
OPR-B660-RU-86

ITEM: 4397 FIELD SHEET: R/H 10-03-86

STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Is. Sound

DATE: December 5, 1986 JD: 339 SHIP/LAUNCH: NOAA Ship HECK

DIVEMASTER: A. Francis DIVERS: A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1655			
UNDER WATER	1656			
ON SURFACE	1716			
IN BOAT	1718			

DIVE DURATION 20 min
MAXIMUM DEPTH 40 FT.

POSITION (If negative report, center of search area)

LAT: 040° 52' 33.53" N LONG: 073° 41' 53.69" W

POSITION NO. 823 VISIBILITY HOR. 3-5 FT. VERT. 3-5 FT.
CURRENT < 1 Kt.

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1713

1. PNEUMO DEPTH 38.0FT.
2. PNEUMO CORR. 0.0FT.
3. FT. 38.0

PNEUMO S/N: 8606822N (0-140 FSW) TIDE CORR. -5.5FT.

TARGET FEATURE: Deteriorated wreckage LEAST DEPTH: 32.5 MLLW

REMARKS

The very deteriorated remains of a an apparent wooden hull vessel. The debris was spread out approximately 3-5 meters in diameter. The least depth was identified and a pneumofathometer reading was taken.

DIVE INVESTIGATION REPORT
OPR-B660-RU-86
R/H 10-03-86

DIVE NUMBER: TEN DIVE DATE: December 5, 1986 (DOY 339)

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Is. Sound

B. POSITION: 823 LATITUDE: 040° 52' 33.53" N
LONGITUDE: 073° 41' 53.69" W

C. METHOD OF POSITIONING:Mini-ranger Falcon 484(range-range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: 4397

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): Side scan sonar record

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.):N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS: N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): Side scan sonar investigation originally determined site of investigation.

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.) A marker buoy was deployed and a circle search was conducted.

C. KNOWN REFERENCE TO FEATURES NEARBY: East Southeast of Execution Rocks approximately 1.9 nm.

D. AREA AND DEPTHS COVERED: Depths in general were between 35-40 FT. as observed on the divers depth gauge.

IV. DIVE DATA

A. DIVERS: A. Francis, K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1656
ELAPSED: 20 min

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION): General depths were around 44 FSW.

D. CURRENT AND CONDITIONS: Current was moderate, The water was extremly cold with very little visibility.

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
HOR: 2-3 FT. VER: 2-3 FT.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Sandy "MUCK"

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): 5747-5749

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: 1525

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): 41.0 FSW/5749

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): A pneumofathometer was used.

B. DESCRIPTION OF FINDINGS: The remains of a very deteriorated, unidentifiable vessel was found. The vessel was made of steel and was densely covered by marine growth. A search was performed and a shoal point was identified. A least depth and detached position taken. The shoal pt was a iron ribbing of the remains of the vessel's hull.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE): The vessel remains indicated that the vessel was approximately six to seven meters long and approximately 2 meters wide. Identification of the vessel was not possible.

D. UNUSUAL CONDITIONS: Visibility was poor and the water was extremly cold.

VI. CHARTING RECOMMENDATIONS

POSITION LAT. 040° 52' 32.23" N LONG. 073° 41' 52.42" W

REDUCED DEPTH: 35.5 FT.

TYPE OF FEATURE (REFERENCE CHART NO.1): Section 0, page 13, item 15, a wreck over which the depth is known, ~~not a hazard to navigation.~~

See the discussions for Item 4397

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION): Between 35 and 40 FT.

D. CURRENT AND CONDITIONS: 1Kt

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
HOR: 3-4 FT. VER: 3-4 FT.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Muck-like

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): 823

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE:171300

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): 38.0/823

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): A pneumofathometer was used

B. DESCRIPTION OF FINDINGS: The deteriorated remains of a wooden hull vessel was found approximately 12 meters from the search buoy. The remains were unidentifiable but, were approximately 3-5 meters in diameter and was very deteriorated. The shoal pt was identified and a least depth was taken on this pt.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE): Approximately 3-5 meters in size extending 3-5 FT. off the bottom.

D. UNUSUAL CONDITIONS: Water was very cold (41.0 ^{o}F)

VI. CHARTING RECOMMENDATIONS

POSITION LAT. 040^{o} 52' 33.53" N LONG. 073^{o} 41' 53.69" W

REDUCED DEPTH: 32.5

TYPE OF FEATURE (REFERENCE CHART NO.1): Chart as a wreck over which the depth is known per Section O item 15 in NOS Chart No. 1, Eighth Edition, November 1984. ~~This item is not a hazard to navigation.~~

See the discussions for item 4397

DIVE INVESTIGATION REPORT
OPR-B660-RU/HE-86
R/H 10-03-86

DIVE NUMBER: TWO DIVE DATE: October 28, 1986 (DOY 301)

I. AREA OF INVESTIGATION

A. STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Island Sound

B. POSITION: 5577 LATITUDE: 040° 53' 48.18" N
LONGITUDE: 073° 43' 01.14" W

C. METHOD OF POSITIONING: Mini-Ranger Falcon 484 (Range-Range)

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: 1731

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): AWOIS

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.): N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS: N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): Side Scan Sonar operations originaly identified the target.

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.)

A marker buoy was deployed and a circle search was performed. Several hangs of the search line occurred, each as a result of large pieces of coal protruding off the bottom.

C. KNOWN REFERENCE TO FEATURES NEARBY: Northwest of Execution Rocks approximately 3000 meters.

D. AREA AND DEPTHS COVERED: Surrounding depths are generaly 50 feet as seen on the divers submersible depth gauge.

IV. DIVE DATA

A. DIVERS: LT(jg) A. Francis, JST K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1525
ELAPSED: 28 min

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION):Generaly 50 feet in depth messured by divers submersible depth gage

D. CURRENT AND CONDITIONS: Approximately 1 knot, 1-2 ft. seas

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
Hor: 1-2 feet Ver: 1-2 Feet

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Muck

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): Three detached positions were taken on the marker buoy move to the site of the coal protrusions. A constant tension wire drag will be run over and around the D.P. positions. Postion numbers:

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: 1525

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): 34.8 FT. (By DSF)/5577

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): DSF echo-sounder trace.

B. DESCRIPTION OF FINDINGS: A large area of coal was found in the area of the dive. The coal piles were irregular and protruded to various hieghts above the bottom. Due to the limited visibility of this area, a constant tension wire drag will be performed at a latter date to resolve the least depth over the coal spoils.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE):
Not possible to determine

D. UNUSUAL CONDITIONS: Low visibility, thick muck like bottom, and very little sealife present

VI. CHARTING RECOMMENDATIONS

POSITION LAT. 040° 53' 48.18" N LONG. 073° 43' 01.14" W

REDUCED DEPTH: 39.2 FT.

TYPE OF FEATURE (REFERENCE CHART NO.1): Wreck symbol over which the depth is known, ~~not a hazard to navigation~~ per Section O, item 15 in NOS Chart No. 1, Eighth Edition, November 1984.

See resolution and reccomendations of constant tension wire drag findings for this AWOIS item

See the discussions for Item 1731

DIVER'S ITEM INVESTIGATION REPORT
OPR-B660-RU/HE-86

ITEM: AWOIS 1731 FIELD SHEET: R/H-10-03-86

STATE/COUNTY: New York/Nassau SUB-LOCALITY: Western Long Island Sound

DATE: October 28, 1986 JD: 301 SHIP/LAUNCH: 9040 NOAA Ship RUDE

DIVEMASTER: LTJG A. Francis DIVERS: A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1512			
UNDER WATER	1515			
ON SURFACE	1537			
IN BOAT	1540			
DIVE DURATION	22 min			
MAXIMUM DEPTH	60 ft.			

POSITION (If negative report, center of search area)

LAT: 040° 53' 48.18" N LONG: 073° 43' 01.14" W

POSITION NO.5577 VISIBILITY HOR. 1-2 feet VERT. 1-2 feet

CURRENT Approximately 1 knot

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1525/34.8 FT.

1.	PNEUMO DEPTH	FT.	N/A
2.	PNEUMO CORR.	FT.	N/A
3.	FT.		N/A

PNEUMO S/N: N/A TIDE CORR. -3.0 FT.

TARGET FEATURE: Coal barge with load LEAST DEPTH: 39.2 FT, MLLW

REMARKS

A large area of coal protruding off the bottom was found in the search area. Due to visibility restrictions, it was deceided that an alternate method of determining least depth was required. A constant tension wire drag will be performed at a latter date to resolve the position and least depth. A least depth was taken with the DSF echo-sounder on the D.P.

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

OCTOBER 28, 86 (301) UNIT: USNS SMP RUDE

LOCATION:

DIVEMASTER: LT (jg) ARTHUR FRANCIS SCIENTISTS: JST Keith SHARACK
TENDERS:

DIVE PLAN: DIVE #1 - SEARCH FOR SUNKEN COAL BARGE IN @ 60 FT OF WATER MAX. DEPTH: 60
COAL REMAINS FOUND - MARKER BOY DEPLOYED - DF's TAKEN MAX. TIME: 60
NO LEAST DEPTH

DIVE # 2 - LOOK FOR UNKNOWN CONTACT @ 3 FT OFF BOTTOM

EQUIPMENT USED: OPEN CIRCUIT SCUBA - AIR

CONDITIONS:
WIND: 15 KTS
SEAS: 0-1'
CURRENT: 1-2 KTS
VISIBILITY: WATER - 2 FT
AIR TEMP.: 60°F
WATER TEMP: 59°F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	TIME / PRESSURE IN / OUT	PRESSURE CHANGE	PRESSURE / TIME IN / OUT	BOTTOM TIME	DEPTH	GROUP
① FRANCIS	—	—	—	1015 / 1037	1600	2900 / 1300	:22	60	E
① SHARACK	—	—	—	1015 / 1037	1700	2600 / 900	:22	60	E
② FRANCIS	24	E	30	1101 / 1118		2500 /			
② SHARACK	24	E	30	1101 / 1118		2600 / —			
③ FRANCIS	—	—	—	1119 / 1131	1700	— / 400	:30	60	H
③ SHARACK	—	—	—	1119 / 1131	1800	— / 500	30	60	H
				/		/			
				/		/			

POST DIVE COMMENTS: BOTH CONTACTS FOUND - NO LC TAKEN ON 2nd CONTACT DUE TO O2 RESTRICTION, SEE BOY ID & DIVE #2 for follow-up

DIVEMASTER SIGNATURE

EXHIBIT 2

DIVE INVESTIGATION REPORT
OPR-B660-RU/HE-86
R/H-10-03-86

DIVE NUMBER: THREE DIVE DATE: October 28,1986 (DOY 301)

I. AREA OF INVESTIGATION

A. STATE/COUNTRY: New York/Nassau SUB-LOCALITY:Western Long Island Sound

B. POSITION: N/A LATITUDE: SEE DIVE #4 DATA
LONGITUDE:

C. METHOD OF POSITIONING: SEE DIVE #4 DATA

II. PURPOSE OF INVESTIGATION

A. AWOIS ITEM NUMBER: Contact near AWOIS 1731

B. SOURCE OF ITEM BEING INVESTIGATED (IF OTHER THAN AWOIS LISTING): N/A

C. CONTACTS (EG.) USCG,C OF E,HARBOR MASTERS,OWNERS,ETC.):
N/A

D. NAMES,ADDRESSES AND PHONE NUMBERS ETC. OF CONTACTS:
N/A

III. SURVEY PROCEDURES

A. DETERMINATION OF DIVE SITE (EG. WIRE DRAG,SIDE DEVELOPMENT): Side Scan Sonar search first identified the target.

B. SEARCH PROCEDURE (EG. FOLLOWING A GROUNDWIRE,CIRCLE SEARCH, SWEEP ALONG KNOWN FEATURE,ETC.)
A marker buoy was deployed near the intended target and a circle search was conducted. Visibility was 1-2 feet which made the search difficult for the divers. The contact was hung by the search line at a distance of ten meters from the marker buoy.

C. KNOWN REFERENCE TO FEATURES NEARBY: North east of Execution Rocks approximately 3000 meters.

D. AREA AND DEPTHS COVERED: General depths in area were 60 ft as observed by divers submerisible depth gauge

IV. DIVE DATA

A. DIVERS: A. Francis, K. Sharack

B. TIME OF DIVE (IN UTC) - REAL: 1601
ELAPSED: 30 min

C. GENERAL BOTTOM DEPTHS (UNITS AND METHOD OF DETERMINATION):
General depths were 60 ft.

D. CURRENT AND CONDITIONS: 1-2 kts current, 1-2 ft. visibility

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
Hor: 1-2 ft. Ver: 1-2 ft.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Muck

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): SEE DIVE #4 DATA

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: DIVE #4 DATA

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): SEE DIVE #4 DATA

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): SEE DIVE #4 DATA

B. DESCRIPTION OF FINDINGS: A five meter long boat, lying overturned was found approximately 10 meters from the marker buoy. The boat has a light blue hull, relatively flat bottom, with no motor attatched. Very little marine growth was seen on the hull. No name was seen on the hull but, another dive will be necessay to locate and get a least depth on the boat so another attempt will be made to identify it. The dive was terminated prior to completion of location and least depth messurement do to restriction of divers allowable bottom time. See dive information on DOY 302 (Dive No. 4) for further information on this contact.

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE):
SEE SKETCH ATTACHED TO DIVE #4 DATA

D. UNUSUAL CONDITIONS: Very low visibility, moderate current

VI. CHARTING RECOMMENDATIONS

POSITION LAT. LONG. SEE DIVE #4 DATA

REDUCED DEPTH: SEE DIVE #4 DATA

TYPE OF FEATURE (REFERENCE CHART NO.1):

SEE DIVE REPORT NO. 4, ON DOY 302
See dive info from DOY 302

DIVER'S ITEM INVESTIGATION REPORT
OPR-B660-RU/HE-86

ITEM: Contact near AWOIS 1731 FIELD SHEET: R/H 10-03-86

STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western Long Island Sound

DATE:October 28, 1986 JD: 301 SHIP/LAUNCH: 9040 NOAA Ship RUDE

DIVEMASTER: LTJG A. Francis DIVERS: A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1559			
UNDER WATER	1601			
ON SURFACE	1631			
IN BOAT	1635			

DIVE DURATION 30 min.
MAXIMUM DEPTH 60 ft.

POSITION (If negative report, center of search area)

LAT: LONG: N/A

POSITION NO.N/A VISIBILITY HOR. 1-2 ft. VERT. 1-2 ft.

CURRENT 1 kts

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH N/A

1. PNEUMO DEPTH N/A FT.
2. PNEUMO CORR. N/A FT.
3. FT. N/A

PNEUMO S/N: N/A TIDE CORR. N/A FT.

TARGET FEATURE: Small boat LEAST DEPTH: N/A MLLW

REMARKS

A marker buoy was deployed near the identified target and a circle search was conducted. The target, a small, light blue, 5 meter long boat was hung by the search line 10 meters from the marker buoy. Meassurements of the boat were taken and identification was attempted. Thirty minutes into the dive the divers had exhausted their allowable bottom time and had to abort the remainder of the dive. Attempts will be made on DOY 302 to identify, locate, and determine the least depth of the boat.

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

OCTOBER 28, 86 (301) UNIT: USNS SHIP RUDE

LOCATION:

DIVEMASTER: LT (jg) ARTHUR FRANCIS SCIENTISTS: JST KEITH SHARACK
TENDERS:

DIVE PLAN: DIVE #1 - SEARCH FOR SUNKEN COAL BARGE IN ≤ 60 FT OF WATER MAX. DEPTH: 60
COAL REMAINS FOUND - MARKER BOY DEPLOYED - DP's TAKEN MAX. TIME: 60
NO LEAST DEPTH

DIVE # 2 - LOOK FOR UNKNOWN CONTACT ≤ 3 FT OFF BOTTOM

EQUIPMENT USED: OPEN CIRCUIT SCUBA - AIR

CONDITIONS:
WIND: 15 KTS
SEAS: 0-1'
CURRENT: 1-2 KTS
VISIBILITY: WATER - 1 FT
AIR TEMP.: 60°F
WATER TEMP: 59°F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	TIME IN / OUT	PRESSURE CHANGE	PRESSURE IN / OUT	BOTTOM TIME	DEPTH	GROUP
① FRANCIS	—	—	—	10:15 / 1037	1600	2900 / 1300	:22	60	E
① SHARACK	—	—	—	1015 / 1037	1700	2600 / 900	:22	60	E
② FRANCIS	24	E	30	1101 / 1118		2500 /			
② SHARACK	24	E	30	1101 / 1118		2600 / —			
FRANCIS	—	—	—	1119 / 1131	1700	— / 400	:30	60	H
SHARACK	—	—	—	1119 / 1131	1800	— / 500	30	60	H
				/		/			
				/		/			

POST DIVE COMMENTS: BOTH CONTACTS FOUND - NO LD TAKEN ON 2nd CONTACT DUE TO B.T. RESTRICTION, SEE ADD'L DIVE #2 for follow-up

DIVEMASTER SIGNATURE

EXHIBIT 2

DIVER'S ITEM INVESTIGATION REPORT

OPR-B660-RU/HE-86

ITEM:Contact near AWOIS 1731 FIELD SHEET: R/H 10-03-86

STATE/COUNTY:New York/Nassau SUB-LOCALITY: Western \long Island Sound

DATE:October 29, 1986 JD:302 SHIP/LAUNCH:NOAA Ship RUDE (9040)

DIVEMASTER:LTJG A. Francis DIVERS:A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1512			
UNDER WATER	1515			
ON SURFACE	1524			
IN BOAT	1528			

DIVE DURATION 9 min
MAXIMUM DEPTH 57 ft.

POSITION (If negative report, center of search area)

LAT: LONG:

POSITION NO. VISIBILITY HOR.1-2 ft. VERT. 1-2 ft.

CURRENT 1-2 kts.

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1517

1. PNEUMO DEPTH 42.4 FT.
2. PNEUMO CORR. 0.0 FT.
3. FT. 42.4

PNEUMO S/N: 8607004N TIDE CORR. FT.

TARGET FEATURE:17 ft. long power boat LEAST DEPTH: MLLW

REMARKS

See dive report dated October 28, 1986 (DOY 301) for details and sketch.

D. CURRENT AND CONDITIONS: 1 knot current, 1-2 ft. seas

E. VISIBILITY (NUMBER OF FEET - HORIZONTALLY AND VERTICALLY):
Hor: 1-2 ft. Ver: 1-2 ft.

F. BOTTOM TYPE (MUD,SAND,ROCKS,ETC.): Muck

V. RESULTS

A. DETACHED POSITIONS NUMBER(S): 5581

TIME OF D.P.'S (UTC):DESCRIBE IF OTHER TIME ZONE: 1517

LEAST DEPTH AND FIX NUMBERS (RAW DEPTH): 42.4 FT./ 5581

METHOD OF DETERMING DEPTH (THE RAW SOUNDING SHOULD BE RECORDED. tHE REDUCED LEAST DEPTH SHOULD BE PLOTTED ON THE FIELD SHEET.): Pneumofatometer

B. DESCRIPTION OF FINDINGS:

A five meter long boat, lying overturned was found approximately 10 meters from the marker buoy. The boat has a light blue hull, relatively flat bottom, with no motor attatched. Very little marine growth was seen on the hull. No name was seen on the hull

C. DIMENSIONS OF ITEM OR FEATURE (ATTACH SKETCH IF APPROPRIATE):
See attached sketch

D. UNUSUAL CONDITIONS:

Low visibility and moderate current

VI. CHARTING RECOMMENDATIONS

POSITION LAT. 040° 53' 51.43" N LONG. 073° 43' 04.66" W

REDUCED DEPTH: 36.9 FT.

TYPE OF FEATURE (REFERENCE CHART NO.1): Chart as a wreck with known depth over it per Section O item 15 in NOS Chart No. 1, Eighth Edition, November 1984. ~~Not considered a hazard to navigation.~~

See the discussions for Item 1731

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

DATE: October 29, 1986 (004 302) UNIT: NOAA Ship RUDE (9040)

LOCATION: WESTERN LONG Is. SOUND

DIVEMASTER: FRANCIS

TENDERS: OS LEWIS, SS STYRON, LT Humphrey

SCIENTISTS:

DIVE PLAN: Perform Cycle Search around marker buoy deployed by RUDE take / -D / + DT on any contacts found

MAX. DEPTH: 60

MAX. TIME: 60 MIN

EQUIPMENT USED: SCUBA - OPEN CIRCUT - AIR

CONDITIONS:

WIND: 10-15 KTS

SEAS: 1-2 FT

CURRENT: 1-2 KTS

VISIBILITY: 1 FT. - H_2O

AIR TEMP.: 68°F

WATER TEMP: 58°F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME (UTC) IN / OUT	BOTTOM TIME	DEPTH	GROUP
① FRANCIS	–	–	–	2900 / 2500	400	1515 / 1524	9	57	B
① SHARACK	–	–	–	2900 / 2300	600	1515 / 1524	9	57	B
				/		/			
② FRANCIS	18 MIN	B	17	2500 / 1000	1800	1542 / 1603	21	60	G
② SHARACK	15 MIN	B	17	2900 / 1100	1800	1542 / 1603	21	60	G
				/		/			
③ FRANCIS	122 MIN	D	24	2600 / 1000	1600	1805 / 1827	22	60	H
③ SHARACK	122 MIN	D	24	3000 / 1000	2000	1805 / 1827	22	60	H

POST DIVE COMMENTS: DIVE #2 - LEAST DEPTH + "D.P. Taken on CONTACT - 17' Power Boat, overturned, protruding 4 Ft off BOTTOM. DIVE #2 Investigate DONUT SHAPE CONTACT) - Probable Texture Change Low Vis, only noticed area of dense crab population in area of no bottom life - (maybe ?) DIVE #3 - Looking for possible boat - 20 m search performed - ran out of B.T. prior to finishing 30 m search

DIVEMASTER SIGNATURE

DIVER'S ITEM INVESTIGATION REPORT

OPR-B660-RU-86

ITEM: AWOIS #4397 FIELD SHEET: R/H 10-03-86

STATE/COUNTY: New York/Nassau SUB-LOCALITY: Western Long Is. Sound

DATE:November 18, 1986 JD: 322 SHIP/LAUNCH: RUDE (9040)

DIVEMASTER: A. Francis DIVERS: A. Francis, K. Sharack

TIME (UTC)	DIVE 1	DIVE 2	DIVE 3	DIVE 4
IN WATER	1450			
UNDER WATER	1453			
ON SURFACE	1527			
IN BOAT	1530			
DIVE DURATION	34 min			
MAXIMUM DEPTH	46 FSW			

POSITION (If negative report, center of search area)

LAT: 040° 52' 32.23" N LONG: 073° 41' 52.42" W

POSITION NO.5747-5749 VISIBILITY HOR. 2-3 VERT.2-3
CURRENT < 1 Kt

LEAST DEPTH CALCULATIONS

TIME (UTC)/DEPTH 1525/41.0

1.	PNEUMO DEPTH	41.0	FT.
2.	PNEUMO CORR.	0.0	FT.
3.	FT.	41.0	

PNEUMO S/N: 8607004N (0-70 FSW) TIDE CORR.-5.5 FT.

TARGET FEATURE:Wreck Debris LEAST DEPTH:35.5 FT.MLLW

REMARKS

A marker buoy was deployed and a circle search was conducted. At a point approximately 10 meters from the marker buoy, debris was discovered. The buoy was moved to adjacient the debris and a search for the least depth was begun. A least depth was identified and a pneumofathometer reading taken. A series of detached positions was then taken by the NOAA Ship RUDE.

Pneumofathometer Field Sheet

PROJECT B660-RU-86 DOY 300 SHEET R/H 10-3-86

****

A) ITEM # 1729 SITE LETTER A

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	1910	43.4	-3.0	40.4
2)	1910	43.4	-3.0	40.4
3)	1910	43.4	-3.0	40.4
4)	1910	43.4	-3.0	40.4

Average Least Depth 40.4

B) ITEM # ____ SITE LETTER ____

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	_____	____	____	____
2)	_____	____	____	____
3)	_____	____	____	____
4)	_____	____	____	____

Average Least Depth _____

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

OCTOBER 27, 1986 (DOY 300) UNIT: NOAA SHIP RUDE

LOCATION: WESTERN LONG ISLAND SOUND (OPR-B660-86)

DIVEMASTER: FRANCIS SCIENTISTS:

TENDERS: LEWIS / STYRON

DIVE PLAN: CIRCLE SEARCH AROUND MARKER BOUY TO FIND AWOIS #1729, IF FOUND TAKE LEAST DEPTH USING PNUMOFATHOMETER MAX. DEPTH: 50 MAX. TIME: 28

EQUIPMENT USED: OPEN CIRCUT SCUBA - AIR

CONDITIONS:
WIND: 0-5 KTS
SEAS: 0-1 FT
CURRENT: 0 KTS
VISIBILITY: WATER - 1/2 FT Surface - 1 NM
AIR TEMP.: 55 F°
WATER TEMP: ~50 F°

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME IN / OUT	BOTTOM TIME	DEPTH	GROUP
FRANCIS	—	—	—	2400 / 1100	1300	1330 / 1418	28 MIN	50	E
SHARACK	—	—	—	2400 / 1100	1200	1330 / 1418	28 MIN	50	E
				/		/			
FRANCIS	2 / min	E	30	2500 / 2000	500	1434 / 1455	16	60	H
SHARACK	2 / min	E	30	2500 / 2000	500	1434 / 1455	16	60	H
				/		/			
				/		/			
				/		/			

POST DIVE COMMENTS: AWOIS #1729 FOUND & LD TAKEN SECOND DIVE TAKEN TO INVESTIGATE CONTACT IN VICINITY — NOT FOUND.

DIVEMASTER SIGNATURE

EXHIBIT 2

BGG ; 86

AWOIS #1729

R/H - 10-03-86

DOY - 300 (OCT 27, 1986)

DIVE ' 10-03- #1

FRANCIS & SHARACK - DIVERS

℄

LEAST DEPTH
43.4' (uncorrected)
By Pneumofathometer

7 ft wide

STERN VIEW

19 ft LONG

≈ 5 ft.

BOTTOM

SIDE VIEW

BOTTOM WAS
8-10" of muck & silt

Pneumofathometer Field Sheet

PROJECT B660-RU-86 DOY 322 SHEET R/H 10-3-86

****

A) ITEM # 4397 SITE LETTER B

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	1525	41.0	-5.5	35.5
2)	1525	41.0	-5.5	35.5
3)	1525	41.0	-5.5	35.5
4)	1525	41.0	-5.5	35.5

Average Least Depth 35.5

D.R.'s 5747-5449

B) ITEM # ____ SITE LETTER ____

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	_____	____	____	____
2)	_____	____	____	____
3)	_____	____	____	____
4)	_____	____	____	____

Average Least Depth _____

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

11-18-86 (DOY 322) UNIT: NOAA SHIP RUDE "B"

LOCATION: WESTER LONG ISLAND SOUND - Proj 8660-86 Sheet - AH10-03-86)

DIVEMASTER: A. FRANCIS
TENDERS: T. LEWIS, M. Aldridge

SCIENTISTS: A. Francis
K. Sharack

DIVE PLAN: CIRCLE SEARCH TO INVESTIGATE ANOIS ITEM # 4397 (SITE B)

MAX. DEPTH: 46'
MAX. TIME: 34 MIN

EQUIPMENT USED: OPEN CIRCUT SCUBA - AIR

CONDITIONS:
WIND: 0-5 KTS
SEAS: 1 FT
CURRENT: ≤ 1 KT

VISIBILITY: Water - 2 FT
AIR TEMP.: 50°F
WATER TEMP: 48°F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME IN / OUT	BOTTOM TIME	DEPTH	GROUP
J.G FRANCIS	—	—	—	2850 / 500	2350	1453 / 1519			
K. SHARACK	—	—	—	2500 / 500	2000	1453 / 1519			
						1522 / 1527	34 MIN	46'	
						1522 / 1527	34 MIN	46'	

POST DIVE COMMENTS: 41' @ 1525 (UTC) At ~ 10 meters from center of search buoy debris was found. A search line was attach to what appeared to be the end of the search was conducted no shoal ft. was found and an FD was taken on this point. D.P.'s number 5747-49 were taken

DIVEMASTER SIGNATURE

EXHIBIT 2

Pneumofathometer Field Sheet

PROJECT B660-RU-86 DOY 339 SHEET R/H 10-3-86

****

A) ITEM # 4397 SITE LETTER A

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	17:13	38'	-5.5	32.5
2)	17:13	38'	-5.5	32.5
3)	17:14	38'	-5.5	32.5
4)	17:14	38'	-5.5	32.5

Average Least Depth 32.5

B) ITEM # _____ SITE LETTER _____

	TIME (UTC)	PNEUMO DEPTH	TIDE CORRECTOR	ACTUAL DEPTH
1)	_____	_____	_____	_____
2)	_____	_____	_____	_____
3)	_____	_____	_____	_____
4)	_____	_____	_____	_____

Average Least Depth _____

~~3377.8 42 ← 0025.4~~

~~5450.2 22~~

AMC FORM DV-2

EXHIBIT 2 Revised
AMC Directive 80-2
Revision 4
June 6, 1986

DIVING OPERATIONS

DATE: (339) Dec 5, 1986 UNIT: Navy Ship Heck

LOCATION: Western Long Island Sound

DIVEMASTER: Francis SCIENTISTS:

TENDERS:

DIVE PLAN: Dive on Marker Bouy on Awois 4397 A MAX. DEPTH: 40

MAX. TIME:

EQUIPMENT USED: Open Circut Scuba

CONDITIONS:

WIND: 15-20 kts VISIBILITY: 3-5 FT

SEAS: 3-4 FT AIR TEMP.: 32°F

CURRENT: 1 kt WATER TEMP: 41°F

DIVERS	SURFACE INTERVAL	GROUP	RESIDUAL NITROGEN	PRESSURE IN / OUT	PRESSURE CHANGE	TIME IN / OUT	BOTTOM TIME	DEPTH	GROUP
[redacted]				[redacted]		[redacted]			
Keith	—	—	—	2500 / 900	1600	1654 / 1716	20	40'	—
Art	—	—	—	2500 / 1400	1100	1656 / 1716	20	40'	—
				/		/			
				/		/			
				/		/			
				/		/			
				/		/			
				/		/			

POST DIVE COMMENTS: The item was found 12 meters from the center of the search bouy. D.P. & LD Taken @ 1713 Depth 38'

DIVEMASTER SIGNATURE

EXHIBIT 2

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
NOAA Ships RUDE & HECK
439 West York Street
Norfolk, VA. 23510
(804) 441-6386

September 27, 1986

TO: Commander, U.S. Coast Guard
Third Coast Guard District

Alan D Anderson
FROM: Commanding Officer
NOAA Ships RUDE & HECK

SUBJECT: Requested Positions for Aids to Navigation

As directed by NOAA hydrographic project instructions OPR-B660-RU-86, the following aids to navigation have been positioned to Third order Class 1 accuracy, and are supplied to you for your use. If the RUDE & HECK can be of any further assistance, feel free to contact us at your convenience.

NAVIGATIONAL AID	LATITUDE (N)	LONGITUDE (W)
THROGS NECK LIGHT	040° 48' 16.15561" ✓	073° 47' 28.02534" ✓
GREAT CAPTAIN ISLAND LIGHT	040° 58' 56.69300"	073° 37' 26.50000"
PORT CHESTER BREAKWATER LIGHT	040° 59' 03.63355"	073° 39' 24.81652"
PORT CHESTER HARBOR LIGHT	040° 59' 08.98309"	073° 39' 37.04961"

Not verified – position data not available

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
NOAA Ships RUDE & HECK
439 West York Street
Norfolk, VA. 23510
(804) 441-6386

September 27, 1986

TO: Commander, U.S. Coast Guard
Third Coast Guard District

FROM: Alan D. Anderson
Commanding Officer
NOAA Ships RUDE & HECK

SUBJECT: Local notice to mariners information

It is requested that the following information be included in the next addition of the local notice to mariners:

The NOAA Ships RUDE & HECK will be conducting hydrographic survey operations in western Long Island Sound, N.Y., in the vicinity of Stepping Stones Light from September 29 through December 13, 1986. Operations will generally be conducted on a Monday through Friday schedule from 0800 to 1630. The NOAA Ships RUDE & HECK are 90 ft long, white hull survey vessels with a blue NOAA emblem on the side.

During operations, the RUDE & HECK will be towing a submerged side scan sonar transducer which will limit the maneuverability of the vessels. Much of the work will be in or near high traffic areas. Any vessel traffic approaching the area is requested to exercise extreme caution and if necessary contact the RUDE & HECK on VHF channels 16 or 13.

PNEUMATIC DEPTH GAUGE SYSTEM CHECK

OPR-E609-RU/HE-85

SHEET # R/H 10-02/03-86 VESNO 9040/9041 DOY 300

POSITION NUMBERS: Beginning TO → DD 322

PNEUMATIC GAUGE S/N: 784996 6-70

TAPE DEPTH	GAUGE DEPTH DOWN	GAUGE DEPTH UP	TAPE ANGLE	MEAN DIF
0 ft	0	0		0
5 ft	5.0	5.0		0
10 ft	10.0	10.0		0
15 ft	15.1	15.0		.05
20 ft	20.1	20.0		0.5
25 ft	24.9	25.1		0.0
30 ft	30.0	30.1		0.5
35 ft				
40 ft				
45 ft				
50 ft				
55 ft				
60 ft				

PNEUMATIC DEPTH GAUGE SYSTEM CHECK
OPR-E609-RU/HE-85

AWOLS 4397

SHEET # R/H 10-03-86 VESNO 9040 (CRUDE) DOY 322

POSITION NUMBERS: 5746 TO 5750

PNEUMATIC GAUGE S/N: (0-70 FSW)

TAPE DEPTH	GAUGE DEPTH DOWN	GAUGE DEPTH UP	TAPE ANGLE	MEAN DIFF
0 ft	0	0	0	
5 ft	5.10	5.00		.05
10 ft	10.00	10.00		0.0
15 ft	14.90	15.00		.05
20 ft	20.00	20.00		0
25 ft	24.95	25.00		.03
30 ft	29.80	30.00		.10
35 ft	34.95	35.00		.03
40 ft	~~39~~.90	~~39.99~~ 40.00		.05
45 ft				
50 ft				
55 ft				
60 ft				
70 ft				
80 ft				
90 ft				
100 ft				

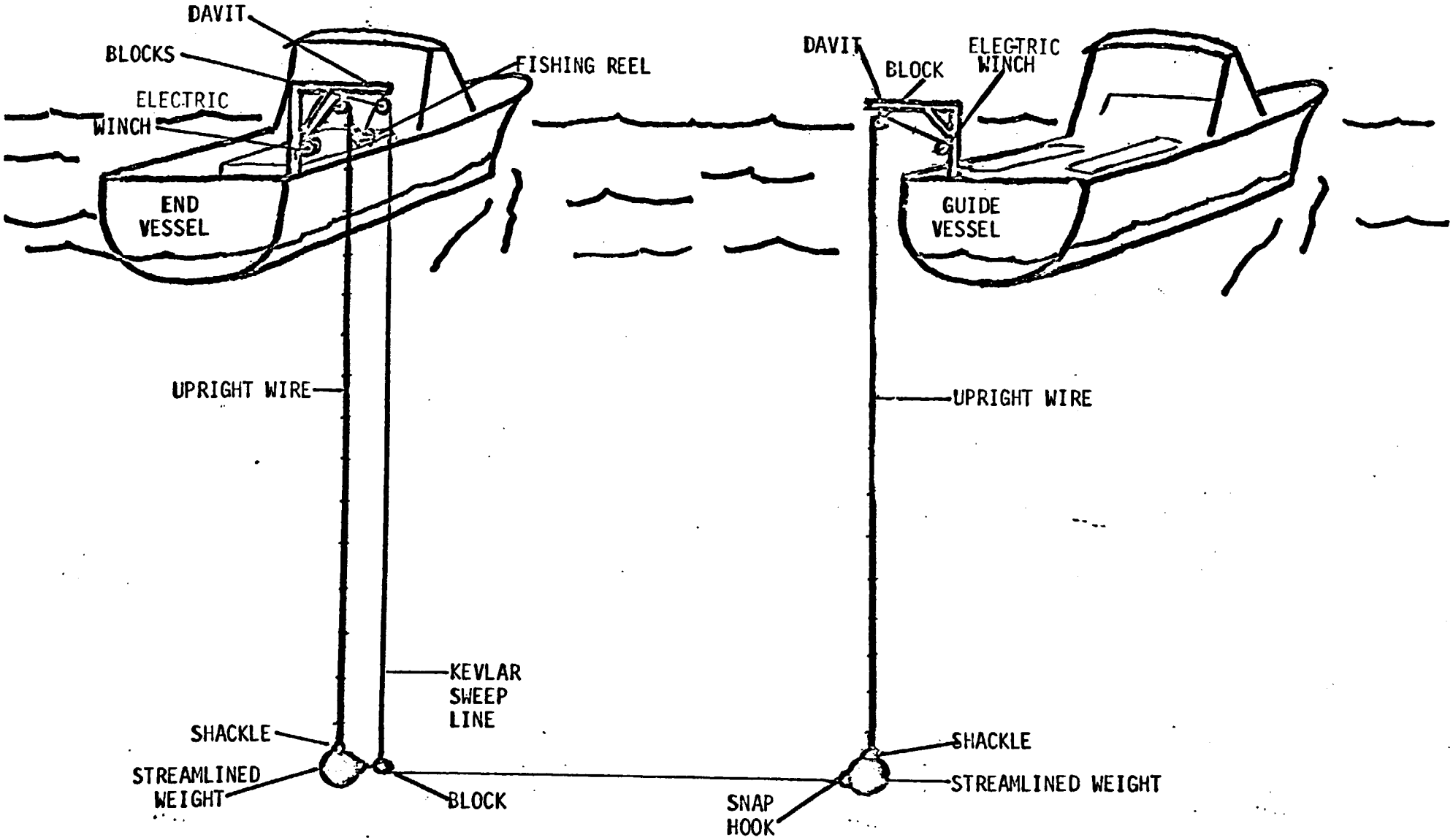
PNEUMATIC DEPTH GAUGE SYSTEM CHECK
OPR-E609-RU/HE-85

SHEET #RU/HE 10-3-46 VESNO 9041 DOY 339

~~POSITION NUMBERS: TO~~ (339 004)

PNEUMATIC GAUGE S/N: 784996 (0-140)

TAPE DEPTH	GAUGE DEPTH DOWN	GAUGE DEPTH UP	TAPE ANGLE	Δ
0 ft	0	0		0
5 ft	4.9	4.9		.10
10 ft	10.0	10.0		0
15 ft	14.8	14.9		.15
20 ft	19.9	19.9		.10
25 ft	24.8	24.8		.20
30 ft	30.0	30.0		0
35 ft	35.1	35.0		.05
40 ft	39.9	39.8		.15
45 ft	44.8	44.9		.15
50 ft	50.0	50.0		0
55 ft				
60 ft				


DAVIT
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DAVIT
BLOCK
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WINCH
GUIDE
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UPRIGHT WIRE
UPRIGHT WIRE
KEVLAR
SWEEP
LINE
SHACKLE
STREAMLINED
WEIGHT
BLOCK
SHACKLE
STREAMLINED WEIGHT
SNAP
HOOK

FIGURE 1

NOAA FORM 61-29
(12-71)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

LETTER TRANSMITTING DATA

REFERENCE NO.
MOA23-80-87

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY (Check):

☐ ORDINARY MAIL ☐ AIR MAIL
☒ REGISTERED MAIL ☐ EXPRESS
☐ GBL (Give number) _____

TO:

Chief, Data Control Branch, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
National Ocean Service
Rockville, MD 20852

DATE FORWARDED
1 December 1987

NUMBER OF PACKAGES
three (3)

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-293SS (R/H-10-2-86 & R/H-10-3-86)
OPR-B660, NEW YORK, LONG ISLAND SOUND

Pkg. 1: (Tube)
- 2 Smooth Field Sheets
- 1 Original Descriptive Report containing four Smooth Sheets

Pkg. 2: (Box)
- 1 Accordian Folder (Vessel HECK) containing data for Year Days: 273, 274, 275, 281, 282, 288, 293, 294, 295, 296, 315, 316, 325, 329, 339, and 342; plus miscellaneous field printouts.
- 1 Accordian Folder (Vessel RUDE) containing data for Year Days: 288, 290, 293, 294, 296, 300, 301, 302, 303, 307, 308, 311, 321, 322, 324, 330, and 339; plus miscellaneous field printouts.
- 1 Accordian Folder containing Electronic Control Reports and Baseline Calibration Data.
- 1 Envelope of Data removed from the Descriptive Report
- 1 Envelope of Approved Tides

DO NOT DISCARD ANY OF THIS DATA.

FROM: (Signature)
Maurice B. Hickson, III

RECEIVED THE ABOVE
(Name, Division, Date)
Dwayne L. Clark
Dec. 24, 1987
N/CG243

Return receipted copy to:

Chief, Hydrographic Surveys Branch,
N/MOA23
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 (12-71)

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

LETTER TRANSMITTING DATA

REFERENCE NO.

MOA23-80-87

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY (Check):

☐ ORDINARY MAIL ☐ AIR MAIL

☒ REGISTERED MAIL ☐ EXPRESS

☐ GBL (Give number) _____

TO:

Chief, Data Control Branch, N/CG243
Room 151, WSC-1
Hydrographic Surveys Branch
National Ocean Service
Rockville, MD 20852

DATE FORWARDED

1 December 1987

NUMBER OF PACKAGES

three (3)

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

FE-293SS (R/H-10-2-86 & R/H-10-3-86)
OPR-B660, NEW YORK, LONG ISLAND SOUND

Pkg. 2: (Box) - Continued
- X Envelope containing Constant Tension Launch Wire Drag Strip Plots for Year Days: 315, 316, and 329.
- 4 Wire Drag Volumes
- 5 Sounding Volumes

Pkg. 3: (Box)
- 9 Envelopes containing Side Scan Sonargrams

DO NOT DISCARD ANY OF THIS DATA.

FROM: (Signature)

Maurice B. Hickson, III

Return receipted copy to:

Chief, Hydrographic Surveys Branch,
N/MOA23
Atlantic Marine Center
439 W. York Street
Norfolk, VA 23510-1114

RECEIVED THE ABOVE
(Name, Division, Date)

Dwayne S. Clark
Dec. 24, 1987
N/CG243

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SHEET

DATE: March 20, 1987

Marine Center: Atlantic

OPR: B660

Hydrographic Sheet: FE-293

Locality: Southern New England Coast, Connecticut and New York

Time Period: September 30 - December 5, 1986

Tide Station Used: 851-6990 Willetts Point, N.Y.

Plane of Reference (Mean Lower Low Water): 5.00 Ft.

Height of Mean High Water Above Plane of Reference: 7.4 Ft.

Remarks: Recommended Zoning:

1. For items located west of longitude 73°45.0' apply a X1.03 range ratio to all heights.
2. For items located east of longitude 73°45.0' to 73°40.0' apply a -10 minute time correction and X1.03 range ratio to all heights.

Chief, Tidal Datum Quality Assurance Section

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SHEET

DATE: March 20, 1987

Marine Center: Atlantic

OPR: B660

Hydrographic Sheet: N/A - Merchant Marine Academy Boat Basin

Locality: U.S. Merchant Marine Academy, Kings Point, New York

Time Period: October 16 - December 8, 1986

Tide Station Used: 851-6990 Willetts Point, N.Y.

Plane of Reference (Mean Lower Low Water): 5.00 Ft.

Height of Mean High Water Above Plane of Reference: 7.4 Ft.

Remarks: Recommended Zoning:

Zone Direct.

James R. Hubbard

Chief, Tidal Datum Quality Assurance Section

NOAA FORM 76-155
(11-72)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-293 SS

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
EXECUTION ROCKS (title)										1
LONG ISLAND SOUND (title)										2
NEW YORK (title)										3
STEPPING STONES (title)										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
										16
										17
					Approved:					18
										19
					Charles E. Harrington					20
					Geographer - N/CG2x5					21
					OCT 13 1987					22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NO.: FE-293WD

Number of positions	1880
Number of soundings	12
Number of control stations	14

	TIME-HOURS	DATE COMPLETED
Preprocessing Examination	97	24 FEB 1987
Verification of Field Data	105	19 JUN 1987
Quality Control Checks		
Evaluation and Analysis	140	25 SEPT 1987
Final Inspection	11	23 SEPT 1987
TOTAL TIME	353	
Marine Center Approval		25 SEPT 1987

Transmittal letter of survey and survey records will be included in the Descriptive Report to identify the records accompanying the survey.

R/V 10-03-86 Acous # 4398 4397 4396 A10386

Sonar Coverage Abstract OPR-B660-RU-86 Item No.

Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Maximum Track Spacing (m)	Coverage Analysis	R2 Arc
5450-5453	100m	12	100	5454-5456	100	15	100	54	200%	4400
5454-5456	"	15	100	5457-5460	"	11	100	57	200	4450
5457-5460	"	11	100	5461-5463	"	11	100	54	200	4500
5461-5463	"	11	100	5464-5466	"	11	100			4550
5464-5466	"	9	900	5467-5470	"	9	900	53	200	5300
5467-5470	"	9	900	5471-5474	"	9	900	83	200	5350
5471-5474	"	9.5	900	5475-5478	"	9.5	900	52	200	5400
5475-5478	"	9	900	5482-5485	"	9	900	55	200	5450
5482-5485	"	9	900	5486-5488	"	9	900	56	200	5500
5486-5488	"	9	900	5489-5493	"	9	900		200	5550
5489-5493	"	8.5	900	5494-5498	"	8.5	900	53	200	6800
5494-5498	"	7.5	938	5499-5503	"	7.5	93.8	54	200	6850
5499-5503	"	8	800	5504-5508	"	8	800	55	200	6900
5504-5508	"	9.5	900	5509-5512	"	9.5	900	55	200	6950
5509-5512	"	9	900	5513-5517	"	9	900	55	200	7000
5513-5517	"	8	800	5518-5522	"	8	800			7050
5518-5522	"	9	900	5523-5527	"	9	900	57	R1 200	4800
5523-5527	"	9	900	5528-5532	"	8.5	900		200	4750

R/V 10-03-86 AWOIS # 4398 397 396 A10386 2

Sonar Coverage Abstract OPR-B660-RU-86 Item No.

Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Search Track Number	Range Scale (m)	Minimum Towfish Height (m)	Minimum Effective Scanning Range (m)	Maximum Track Spacing (m)	Coverage Analysis	R, ARC
5528-5532	100	8.5	100	5533-5537	100	10	100	64	200	3425
5533-5537	"	10	100	5538-5541	"	10	100	64	200	3375
5538-5541	"	10	100	5542-5545	"	14	100	85	200	3325
5542-5545	"	14	100	5546-5549	"	12	100	83	200	2100
5546-5549	"	12	100	5550-5553	"	9	100	56	200	2050
5550-5553	"	9	100	5554-5558	"	11	100	63	200	2000
5554-5558	"	11	100	5559-5563	"	6.5	81.25	52	200	1950
5559-5563	"	6.5	81.25	5564-5567	"	8.0	100	54	200	1900
5564-5567	"	8.0	100	5568-5571	"	11	100	100	200	1850
5568-5571	"	11	100							1900
5592-5595	100	11	100	5596-5600	100	10.4	100	62	200 %	R, 3800
5596-5600	"	10.4	100	5601-5604	"	10.5	100	57	200 %	3850
5601-5604	"	10.5	100	5605-5608	"	10.5	100	54	200 %	3900
5605-5608	"	10.5	100	5609-5612	"	10.0	100	56	200 %	3950
5609-5612	"	10.0	100	5613-5616	"	10.1				4000
										3825

212-350-4000

K-2nd
212-758-6400
-955-9292

R/V MBIO-03-86

SONAR COVERAGE ABSTRACT

OPR-B660-RJ-86 ITEM#

SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	SEARCH TRACK NUMBER	RANGE SCALE (M)	MINIMUM EFFECTIVE SCANNING RANGE (M)	MINIMUM TOWFISH HEIGHT (M)	MAXIMUM TRACK SPACING (M)	COVERAGE ANALYSIS	R,
5738-5745	100	100	10	5729-5737	100	100	10	57	200%	5550
5729-5737	100	100	10	5720-5728	100	100	9.7	65	"	5500
5720-5728	100	100	9.7	5711-5719	100	100	9.6	66	"	5450
5711-5719	100	100	9.6	5617-5626	100	100	10	57	"	5400
5617-5626	100	100	10	5627-5635	100	100	10	57	"	5350
5627-5635	100	100	10	5636-5644	100	100	10	55	"	5300
5636-5644	100	100	10	5645-56-53	100	100	9.9	60	"	5250
5645-5653	100	100	9.9	5654-5662	100	100	10.0	52	"	5200
5654-5662	100	100	10	5663-5672	100	100	9.8	56	"	5150
5663-5672	100	100	9.8	5673-5679	100	100	8.5	57	"	5100
5673-5679	100	100	8.5	5680-5687	100	100	9.0	71	"	5050
5680-5687	100	100	9.0	5688-5694	100	100	9.7	68	"	5000
5688-5694	100	100	9.7	5695-5700	100	100	8.0	57	"	4950
5695-5700	100	100	8.0	5701-5706	100	100	9.5	55	"	4900
5701-5706	100	100	9.5	5707-5710	100	100	10.0	57	"	4850
5707-5710	100	100	10.0							4800

OPR-B661-RU/HE/86

Side Scan Sonar Contact List
AWOIS # 4400 4396 4397

FIELD SHEET # R/H-10-03-86

EVENT #	LAYBACK	RANGE	POSITION	TARGET HEIGHT	CHARTED DEPTH	COMPUTED DEPTH	REMARKS	INITALS
p 5525.1	27	11.6	40 52 05.96 73 40 59.17	3.7			S 5501.3	TAW
p 5529.7	27	63	40 52 33.46 73 41 54.09	1.1			S 5471.4, S 5484.4	TAW
p 5535.6	30	13	40 52 32.05 73 41 53.27	1.5			p 5477.7, p 5484.5, p 5487.0	TAW
s 5538.9	30	57.4	40 52 30.80 73 41 55.04	0.6			INSIG ROCK?	TAW
s 5539.2	30	32.9	40 52 33.42 73 41 54.42	1.1			INSIG ROCK?	TAW
NO SD 307-308								
s 5676.4	27	76.6	40 53 19.95 73 40 44.50	0.4			INSIG ROCKS	TAW
s 5677.1	27	34.2	40 53 22.69 73 40 47.28	0.5			INSIG ROCK	TAW
s 5677.7	27	38.0	40 53 25.66 73 40 48.17	2.1			INSIG ROCK	TAW
p 5705.5	27	27.8	40 53 22.44 73 40 58.79	0.5			INSIG ROCK?	TAW
p 5729.6	27	9.1	40 53 07.9 73 40 25.59	0.8			INSIG SUSPICIOUS DONUT	TAW

Side Scan Sonar Contact List

OPR-B661-RU/HE/86 AWOIS # 4396 1729 4397 FIELD SHEET # R/H-10-03-86

EVENT #	LAYBACK	RANGE	POSITION	TARGET HEIGHT	CHARTED DEPTH	COMPUTED DEPTH	REMARKS	INITALS
S5172.9	39	30.7	40 52 58.42 73 43 19.67	1.3			INSIG BOULDER	TAW
S5258.4	33	76.6	40 53 19.08 73 43 17.5	0.8			INSIG BOULDERS ?	TAW
P5267.0	33	35	40 53 12.71 73 43 56.82	2.0			INSIG ROCK	TAW
P5297.0	33	26.8	40 53 19.01 73 43 18.15	2.7			DIVE SITE E AWOIS 1729 WRECK	TAW
P5306.1	33	7.6	40 53 19.37 73 43 17.6	4.2			P5297.0	TAW
S5321.8	33	65.4	40 53 19.27 73 43 18.37	1.3			P5297.0, P5306.1	TAW
P5335.6	33	45.7	40 53 18.21 73 43 48.14	1.4			INSIG ROCK	TAW
S5389.8	42	24.7	40 53 19.10 73 43 17.62	1.3			P5297.0, P5306.1, S5321.8	TAW
S5400.4	42	16.2	40 53 35.79 73 43 27.66	1.0			S5104.0, S5117.6, P5131.1, S5141.0	TAW
P5416.3	39	11.0	40 53 45.15 73 43 55.44	0.7			P5031.9	TAW
S5423.2	45	14.6	40 53 51.15 73 43 05.84	1.8			S5040.1 S5050.2 P5068.2	TAW
S5432.2	42	7.4	40 53 48.39 73 43 01.01	0.8			DIVE SITE D AWOIS 1731 S5068.5 S5087.1, S5087.7	TAW
S5471.4	27	41.1	40 52 33.74 73 41 54.46	1.3			DIVE SITE A AWOIS 4397 ROCK	TAW
P5477.7	27	52.3	40 52 32.09 73 41 53.01	0.5			DIVE SITE B AWOIS 4397 ROCK	TAW
S5484.4	27	45.4	40 52 33.56 73 41 53.81	1.3			S5471.4	TAW
P5484.5	27	4.2	40 52 32.02 73 41 53.07	1.6			P5477.7	TAW
P5487.0	27	45.5	40 52 31.46 73 41 53.71	0.7			S5471.4, S5484.4	TAW
S5501.3	27	16.7	40 52 05.75 73 40 59.00	4.6			POLE DIVE AWOIS 4396	TAW

94-296

OPR-B661-RU/HE/86

Side Scan Sonar Contact List

AWOIS # 1729 1731

FIELD SHEET # R/H-10-03-86

EVENT #	LAYBACK	RANGE	POSITION	TARGET HEIGHT	CHARTED DEPTH	COMPUTED DEPTH	REMARKS	INITIALS
P5003.5	31	89.2	40 53 49.77 73 43 21.60	N/A ~~0.3~~			INSIG BOTTOM TEXTURE CHANGE	JRJ
S5005.8	31	22.1	40 53 50.63 73 43 36.00	0.5			INSIGNIFICANT	JRJ
S5008.0	31	44.4	40 53 50.17 73 43 48.95	0.6			INSIG SMALL BOULDERS	JRJ
S5016.4	35	38.5	40 53 48.45 73 43 27.64	N/A			'DONUT' DIVE SITE C AWOIS 1729 BOTTOM TEXTURE CHANGE	JRJ
S5026.9	35	12.5	40 53 48.58 73 43 27.17	N/A			" " "	TAW
P5031.9	35	12.6	40 53 45.10 73 43 55.45	0.8			DIVE SITE B AWOIS 1729 PROBABLY INSIGNIFICANT	TAW
P5036.9	35	65.9	40 53 48.50 73 43 27.89	N/A			SEE S5015.4 & S5026.9	TAW
S5040.1	35	40.8	40 53 51.15 73 43 05.75	0.7			DIVE SITE F AWOIS 1731 SMALL TARGET	TAW
~~P5044.7~~	~~35~~	~~81.6~~	~~40 53 54.07 73 43 02.43~~	~~N/A~~			~~BOTTOM TEXTURE CHANGE~~	~~TAW~~
S5050.2	35	9.2	40 53 51.22 73 43 04.91	1.4			SMALL TARGET S5040.1	TAW
P5068.2	35	56.7	40 53 51.19 73 43 05.27	0.6			SEE S5040.1 & S5050.2	TAW
P5068.5	35	56.2	40 53 48.50 73 43 01.56	0.5			DIVE SITE D AWOIS 1731 SUSPICIOUS – CLOSER LOOK	TAW
S5082.1	33	8.5	40 53 48.11 73 43 1.20	N/A			DIVE SITE D AWOIS 1731 BOTTOM CHANGE	TAW
S5087.7	33	32.6	40 53 48.23 73 43 0.91	0.5			SEE S5068.5 & S5082.1	TAW
S5087.9	33	23.2	40 53 47.58 73 43 01.71	0.5			" " "	TAW
S5104.0	33	66.7	40 53 35.79 73 43 26.79	0.8			DIVE SITE A AWOIS 1729 SMALL CONTACT	TAW
S5117.6	33	16.0	40 53 35.87 73 43 26.38	1.5			BOAT? S5104.0	TAW
P5131.1	33	29.2	40 53 35.71 73 43 27.01	1.0			BOAT? S5104.0, S5117.6	TAW
S5141.0	33	77.6	40 53 35.53 73 43 26.43	0.9			BOAT? SEE S5117.6 & P5131.1	TAW

OPR-B661-RU/HE/86

Side Scan Sonar Contact List
AWOIS # 4398

FIELD SHEET # R/H-10-03-86

EVENT # JD 296	LAYBACK (m)	RANGE (m)	POSITION	TARGET HEIGHT	CHARTED DEPTH	COMPUTED DEPTH	REMARKS	INITALS
p 5459.4	3ϕ	78.0	40° 52' 43.11"N 073° 42' 56.15"W	3.1			BOULDERS	KFS
s 5461.1	3ϕ	28.7	40° 52' 42.87"N 073° 42' 56.95"W	3.5			"	
s 5550.1	3ϕ	32.7	40° 52' 40.43"N 073° 42' 50.77"W	3.0			"	
p 5552.9	3ϕ	26.1	40° 52' 52.95"N 073° 42' 54.75"W	4.2			"	
s 555.5	3ϕ	54.4	40° 52' 52.94"N 073° 42' 58.31"W	1.7			"	
s 5554.7	3ϕ	78.6	40° 52' 56.68"N 073° 43' 00.21"W	2.1			"	
s 5557.8	3ϕ	43.5	40° 52' 42.94"N 073° 42' 56.34"W	3.2			"	
s 5559.7	3ϕ	51.5	40° 52' 40.98"N 073° 42' 54.18"W	5.3			"	
s 5562.2	3ϕ	21.0	40° 52' 52.21"N 073° 42' 56.82"W	3.6			"	
s 5562.6	3ϕ	38.9	40° 52' 55.09"N 073° 42' 56.81"W	3.5			"	
p 5564.9	3ϕ	65.8	40° 52' 52.67"N 073° 42' 57.19"W	5.5			CURRENTLY CHARTED	
s 5566.7	3ϕ	31.8	40° 52' 43.86"N 073° 42' 59.90"W	7.8			CURRENTLY CHARTED	
s 5566.8	3ϕ	63.ϕ	40° 52' 43.09"N 073° 43' 01.47"W	4.3			"	
p 5566.6	3ϕ	38.ϕ	40° 52' 44.36"N 073° 42' 56.89"W	3.4			"	
							NO WRECKAGE ; BOULDER AREAS	
							ADEQUATELY CHARTED	

APPENDIX XI
DANGERS TO NAVIGATION

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

NOAA Ship RUDE
439 West York Street
Norfolk, VA. 23510-1114

9 December, 1986

TO: Commander
Third Coast Guard District
Governors Island
New York, New York 10004-5098

FROM: Lieutenant Commander Alan D. Anderson
Commanding Officer

SUBJECT: Notice to Mariners

The charted obstruction on Chart 12366, 19th edition, at Latitude 40° 52' 05" N, Longitude 073° 40' 57.5" W at a charted depth of 19 feet has been located by this unit during survey operations. The new position is Latitude 40° 52' 05.50" N, Longitude 073° 40' 59.14" W. The new least depth as determined by divers equipped with a pneumofathometer is 15.3 feet MLLW (corrected for predicted tides). The LORAN-C rates for this obstruction are 9960-X 26909.3 and 9960-Y 43926.6. The surveyed depth of this obstruction is 3.7 feet shoaler than is currently charted.

APPENDIX XII
SUPPLEMENTAL INFORMATION

See section 7.a.4) of the Evaluation Report.

AWOIS # 4386 SHEET R/H 10-02-86

1) EXPECTED FEATURE

AWOIS item 4386 was reported as an obstruction, cleared to 57 ft., hung at 58 ft. at LAT. 040° 50' 00.00" N, LONG. 073° 46' 18.00" W. The obstruction is not considered a hazard to navigation. - by FE-174, 1960

2) AREA SURVEYED

The AWOIS listing (dated April 1, 1986) called for a 75 meter radius search area centered around the charted position. Verification or Disproval by side scan sonar, wire drag, or diver investigation was required.

This investigation was conducted in two phases. The first phase of the investigation (DOY 295) was the running of hydrographic sounding lines. This essentially provided 100% sonification of the bottom. On DOY 296, the required 200% side scan sonar was performed between the sounding lines. Neither investigation turned up any indication of the reported hazard in the area. General depths in the area range from 58-65 ft. and the bottom is generally flat, sloping to shoal areas. It is the opinion of the hydrographer that the item in question is not present and that based on the depths seen in the area of the suspect item, what occurred previously was a bottom touch at the reported 58 ft. 400% required

3) COMPARISON WITH PRIOR SURVEY

Soundings from Hydrographic Survey No. 5546 (June-July, 1934, 1:10,000 scale) were compared against hydrographic data gathered during the investigation of this AWOIS item. Ten soundings from the prior survey were compared. As is the case with other items on this sheet, an apparent shoaling is seen in the area. A shoaling of 2-3 ft. can be seen. Although no soundings fell directly on top of data gathered during this project, this apparent shoaling follows the trend seen throughout the project area. H-5547 is also common

4) COMPARISON WITH CHART

Soundings from Chart 12366 (19th Edition, Feb. 4/84, 1:20,000 scale) were compared against data collected during the investigation of this AWOIS item. Three soundings fell within the area of work on this item. No meaningful comparison can be performed with this chart.

5) DIVE REPORT

No dives were performed on this AWOIS item due to high levels of pollutants in the surrounding waters.

6) RECOMMENDATIONS

AWOIS item 4386 is not considered disproved by 200% side scan sonar and DSF development. ~~It is recommended that the charted AWOIS item be removed from the next edition of charts 12366 and 12363 and replaced with a sounding representative of the area.~~ Do not concur

In addition, the apparent shoaling should be considered when planning future hydrographic survey operations in this area. - Concur

See section 7.a.4) of the Evaluation Report.

AWOIS item 4388 is not considered disproved by 200% side scan sonar and DSF development. ~~It is recommended that the charted AWOIS item be removed from the next edition of charts 12366 and 12363 as it poses no hazard to navigation and replaced with a sounding representative of the area.~~ Do not concur

See section 7.a.6) of the Evaluation Report.

ATLANTIC MARINE CENTER
EVALUATION REPORT

SURVEY NO.: FE-293SS FIELD NO.: R/H-10-2-86 & R/H-10-3-86

New York, Long Island Sound, Vicinities of Execution Rocks and Stepping Stones

SURVEYED: September 30 through December 10, 1986

SCALE: 1:10,000 PROJECT NO.: OPR-B660-RU-86

SOUNDINGS: Klein and EG&G Side Scan Sonar, Wire Drag, Pneumatic Depth Gauge, and RAYTHEON DSF-6000N Echosounder

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range)

Chief of Party.....A. D. Anderson

Surveyed by.....J. C. Talbott
.....A. E. Francis
.....T. A. Wolf

1. INTRODUCTION

a. The purpose of this survey is adequately defined in the Descriptive Report and the Project Instructions. Processing has been modified so that only the wrecks, obstructions, and shoals found and, if obtained, their least depths or shoalest soundings and wire drag results have been smooth plotted. This modified processing is considered complete in regard to nautical charting requirements.

b. This is primarily a side-scan sonar survey. Raytheon DSF-6000N echo sounders were operated concurrently with the side-scan sonars. Echo sounder developments were conducted to search for items and to determine the shoalest soundings. The hydrography is considered reconnaissance hydrography and not suitable for charting except for the shoalest soundings and least depths determined. Pneumatic depth gauges were used to determine least depths. Constant tension launch wire drag was used to establish clearance depths over items to assure no shoaler depths exist than found by echo sounder when least depths could not be obtained and to assure that no undetected hazards exist.

c. Four plots of the results of this survey were generated and are attached to this report. These plots are considered the final plots or smooth sheets for this survey.

d. Corrections and notes made by the evaluator to the Descriptive Report are denoted in red ink.

2. CONTROL AND SHORELINE

a. Horizontal control stations used during this survey are of Third Order, Class I accuracy or better, and are established on the North American Datum of 1927, except the two undescribed, nonrecoverable eccentric stations established by the hydrographer. A copy of the field records and computations for the two eccentric stations are included in the Electronic Control Report for this survey. Two of the stations listed (KINGS POINT USMMA FLAGPOLE and MARONECK WINGED FOOT GC TANK) were not listed in any of the horizontal control data available and were not verified. Ten stations do not have establishment dates. Positioning methods are adequately discussed in the Descriptive Report. Calibration methods are adequately discussed in the Descriptive Report and adequate calibration data is recorded in the field records.

b. Charted shoreline within the limits of the smooth plots of this survey was not drawn on the smooth plots. Charted shoreline for orientation is not considered necessary for chart application of this survey data.

3. HYDROGRAPHY

The least depths and shoalest soundings collected on the wrecks, obstructions, and shoals found during this survey are the only valid soundings for charting. All other soundings collected on this survey are of reconnaissance value only. The investigation of features and the determination of least depths is considered adequate except as noted in this report.

4. CONDITION OF SURVEY

The final field sheets, survey records, and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL, the WIRE DRAG MANUAL, and the PROVISIONAL SIDE SCAN SONAR MANUAL with the following exceptions:

a. The Descriptive Report is organized and the data is presented in a manner which made processing difficult and cumbersome. A standard format for the Descriptive Report text and Appendices of side-scan sonar item investigation surveys needs to be developed to prevent future difficulties. An index in the Descriptive Report is not a requirement but would have been beneficial during processing.

b. Appendix IV of the Descriptive Report "Sounding Correction Abstract" does not contain a TC/TI abstract nor do the abstracts provided indicate the velocity tables to be applied to the listed data. Additionally no sounding

corrector abstract was provided for vessel 9040 (RUDE). No echosoundings from vessel 9040 were smooth plotted.

c. Differences exist between some of the dive reports and the descriptive narratives of the AWOIS Items investigated.

d. Appendix IX "Nonfloating Aids and Landmarks for Charting" of the Descriptive Report gives a negative report. Section P. and the letter to the Commander, U. S. Coast Guard, Third District dated 27 September 1986 in Appendix XII of the Descriptive Report states that four fixed aids to navigation were located to Third Order, Class One accuracy. The letter also lists the positions of the four fixed aids to navigation. No other information was provided on these or any other fixed aids to navigation or landmarks.

e. Chart comparisons with chart 12367 were not accomplished by the field. Chart 12367 is the largest scale chart common to AWOIS #1733 and is also common to AWOIS #1731. See section 7.9. of the Project Instructions.

f. Not all the prior surveys listed in section 7.8 of the Project Instructions were compared with as required. In particular prior surveys FE-174WD (1960) and H-5078WD (1930) which are source documents for 12 of the 14 items investigated were not considered in comparisons with prior surveys by the hydrographer. See section 6.b. of this report.

g. The survey's volumes are disorganized and confusing. The sequence of data in the volumes is difficult to follow and numerous duplicate positions exist.

h. The vessels' identification numbers were in error. These errors were corrected during verification.

i. This survey was originally transmitted to N/MOA23 with incomplete digital data. Following preprocessing the field generated and submitted digital data tapes of only the data intended for smooth plotting.

j. Numerous flagged side-scan sonar contacts are not plotted on the side-scan sonar coverage/contact overlays. Section 7.4.4.2. of the Project Instructions requires that all flagged contacts are to be plotted. Additionally the plotted contacts should be labeled with appropriate descriptive notes.

k. Three significant contacts were not flagged, logged, plotted or investigated as required by section 7.4.4.1. of the Project Instructions. Of particular note are the two wreck-like contacts found during the investigations of AWOIS

#4417 & #4418. See section 7.a.13) and 7.a.14) of this report for discussions on these two wreck-like contacts.

l. AWOIS #4386, #4387, #4388, #4389, #4397, #4400, and #4416 were not found and present survey investigations are incomplete. Two hundred percent (200%) side-scan sonar coverage was accomplished on these items. Four hundred percent (400%) side-scan sonar coverage is required for disproval as specified in section 7.4.2.3. of the Project Instructions. Additionally, section 1.1 of the Project Instructions requires that the items assigned and investigated were to be either verified or disproved.

m. No side-scan sonar confidence checks were accomplished during this field examination. This requirement is noted in the PROFESSIONAL PAPER 24 referred to in section 7.4. of the Project Instructions. Additionally, section 1.2.6. of the PROVISIONAL SIDE SCAN SONAR MANUAL specifies the necessity and recommended frequency of confidence checks.

n. Annotations on the side-scan sonargrams are, in general, very good. Some additional annotations on the EG&G sonargrams would have been desirable.

o. In general, the quality of the side-scan sonargrams is very good.

p. Some areas of boulder fields are common to the present survey. In areas where features such as boulder fields exist, the limits of the boulder fields should be portrayed and the most significant boulders should be plotted on the field sheets.

q. A large portion of the constant tension launch wire drag conducted on this survey was rejected. No explanations were provided in either the field records or the Descriptive Report. It is beneficial to note the reason for data rejection in the field records (volumes).

r. No journals were written for any of the constant tension launch wire drag strips. Journals are necessary to properly process and evaluate the constant tension wire drag data. See section AF.1.6.11. of Hydrographic Survey Guideline #51.

s. Items hung by constant tension launch wire drag were cleared in one direction only; except AWOIS #4416, which was cleared in two directions. Section AF.1.6.3. of Hydrographic Survey Guideline #51 and section 4-19 of the WIRE DRAG MANUAL requires clearance in opposing directions except when diver investigations determine that the wreck or obstruction is equally hangable in all directions and is so stated in the Dive Report.

t. Only field A&D plots for the constant tension launch wire drag work conducted on the items investigated were included in the field records. No field plots of the individual constant tension launch wire drag strips were included in the field records. Field plots of each individual constant tension wire drag strip should be made in addition to the field A&D plots as required by section AF.1.6.10. of Hydrographic Survey Guideline #51.

u. In constant tension launch wire drag strips containing a hang, effective depth was claimed beyond the point of hang on the field plots. Effective depth past the initial contact of a hang within a strip cannot be claimed as the stress of a hang upon the ground wire alters the dynamics of the drag.

v. No effective depth diagrams were drawn in the survey's volumes. Effective depth diagrams are required by section AF.1.6.11. of Hydrographic Survey Guideline #51 and section 5-4 of the WIRE DRAG MANUAL.

w. The recording in the survey's volumes for constant tension launch wire drag lacked the basic strip information/stamp data and annotations such as bight information, upright settings, personnel, course and speed, control, field processing, statistics, weather, seas, and drag length. In general, line remarks (eg.:L.B. & L.E.) were noted on the strips. Refer to sections 3-16, 3-17, 3-18, 5-2, 5-3, 5-4, and 5-5 of the WIRE DRAG MANUAL and sections AF.1.6.8. and AF.1.6.11. of Hydrographic Survey Guideline #51.

x. Bottom samples were not taken during this survey. Bottom characteristics on shoals were required by section 7.6.3. of the Project Instructions and section 4.5.9.2. of the HYDROGRAPHIC MANUAL.

y. It would have been beneficial if local dive groups, dive shops, and professional diving companies within the area were contacted by the hydrographer concerning the assigned AWOIS Items and any other wrecks or obstructions which may not be charted or charted incorrectly.

5. JUNCTIONS

There are no junctions on this survey.

6. COMPARISON WITH SURVEYS

a. PRIOR SURVEYS

H-1732a (1914-16) 1:20,000
H-5545 (1934) 1:10,000
H-5546 (1934) 1:10,000
H-5547 (1934) 1:10,000

These prior surveys are common to the entire present survey. Comparisons between present and prior hydrography were not made since all present hydrography, except the detached soundings on items located, is considered reconnaissance hydrography. Adequate comparisons between the reconnaissance hydrography and prior soundings have been made by the hydrographer in Appendix XII. of the Descriptive Report. Wrecks, obstructions, and shoals found by this survey are discussed in section 7.a. of this report.

It is not the intent of the present survey to supersede but only to supplement prior hydrography.

b. WIRE DRAG SURVEYS

H-5078WD (1930) 1:20,000
FE-174WD (FE No. 2, 1960) 1:20,000

Prior wire drag survey H-5078 is common to the entire present survey. Eight of the fourteen investigated AWOIS Items originated with this prior wire drag survey. The results of the present survey investigations are discussed in section 7.a. of this report.

Prior wire drag survey FE-174 is common to investigated AWOIS Items 4386, 4387, 4388, and 4389. These four AWOIS Items originated with this prior survey. The results of the present survey investigations are discussed in section 7.a. of this report.

7. COMPARISON WITH CHARTS 12366 (20th Ed., Nov. 1, 1986)
12367 (17th Ed., Nov. 1, 1986)

a. HYDROGRAPHY

The charted hydrography originates with the previously discussed prior surveys and soundings not readily ascertainable. The previously discussed prior surveys require no further consideration. Attention is directed to the following:

1) AWOIS #1729, a charted dangerous sunken wreck in Latitude 40°53'24"N, Longitude 73°43'30"W originated with Notice to Mariners No. 40 of 1956 and is identified as an 18-foot sailboat. A sailboat 19 feet in length, 7 feet in width, and rising approximately 5 feet off the bottom in prior (H-1732a) depths of 44 feet was found in Latitude 40°53'35.37"N, Longitude 73°43'26.92"W. This wreck was designated as contact 1729A. The sailboat is resting rightside up with the stern partially buried in the bottom. No mast was found either on the wreck or in the vicinity of the wreck. The identity of this sailboat could not be

determined. A least depth of 40 feet (corrected for smooth tides) was obtained by pneumatic depth gauge. Since this wreck closely agrees with the described AWOIS Item being sought and is in the assigned search area, it is considered to be AWOIS Item #1729. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a least depth of 40 feet. The presently charted dangerous sunken wreck should be deleted from the chart. No additional field work is recommended on this AWOIS Item. One other wreck and one obstruction were found during the investigation of AWOIS Item #1729 and are addressed as follows:

a) A large, highly deteriorated wooden vessel with several timbers protruding above the bottom was found in Latitude 40°53'18.99"N, Longitude 73°43'17.90"W. This wreck was designated as contact 1729E. This wreck lies in prior (H-1732a) depths of approximately 64 feet. The dimensions of this wreck could not be determined due to the highly deteriorated condition. A least depth of 56 feet (corrected for smooth tides) was obtained by pneumatic depth gauge on the shoalest timber protruding above the bottom. This wreck is in an area cleared by an effective depth of 38 feet by prior survey H-5078WD (1930) and was most likely in existence at the time of the survey. This wreck is not presently charted. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a least depth of 56 feet. No additional field work is recommended on this wreck.

b) A contact which rises approximately 11½ feet above the bottom in depths of 47 feet was evident on the side-scan sonargrams for the investigation of AWOIS Item #1729. This contact is located in Latitude 40°53'12.7"N, Longitude 73°43'57.1"W, position approximate. This contact was not investigated and is unidentified. It is possible that this contact is a boulder, but it is an isolated contact and is east of the boulder fields associated with Execution Rocks. It is recommended that this contact be charted in the position determined by the present survey as a dangerous submerged obstruction, position approximate (±100 meters). Additional field work is recommended to identify and to obtain an accurate position and least depth on this obstruction.

2) AWOIS #1731, a charted dangerous sunken wreck with a least depth of 32 feet in Latitude 40°53'48.3"N, Longitude 73°43'02.5"W originated with prior survey H-5078WD (1930) and was subsequently identified in Chart Letter #1095 of 1986 as a badly deteriorated coal barge filled with coal in Latitude 40°53'53"N, Longitude 73°42'43"W. A wreck was found by the present survey in Latitude 40°53'48.17"N, Longitude 73°43'01.17"W and was identified as a badly deteriorated coal barge loaded with coal. This wreck was

designated 1731D. Since this wreck matches the described AWOIS Item and is positionally very close (approximately 45 meters east of the charted position), it is considered to be AWOIS Item #1731. The dimensions of this wreck could not be determined due to the highly deteriorated condition. This wreck lies in prior (H-1732a) depths of approximately 43 feet. A shoalest sounding of 40 feet (corrected for smooth tides, TRA, and velocity) was obtained by echo sounder on the present survey. A least depth by pneumatic depth gauge could not be obtained due to the irregular shapes of the coal piles and the limited visibility. Prior survey H-5078WD obtained a shoalest sounding of 32 feet in surrounding depths of 41-43 feet. This wreck apparently has settled over the 56 years between the prior and present survey and is supported by the divers' description of the bottom in this area as muck. Constant tension launch wire drag was conducted on this wreck but the data was rejected by the field. A hang did occur during one of the constant tension wire drag strips but is identified in the volume as a hang on a lobster pot. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a shoalest sounding of 40 feet. The presently charted dangerous sunken wreck and least depth should be deleted from the chart. ~~Additional field work is recommended to obtain a wire drag clearance depth over this wreck.~~ Do not concur. See Addendum to FE-29355 Evaluation Report (follows this report)

One other sunken wreck was found during the investigation of AWOIS Item #1731. A boat 17 feet in length, 7 feet in width, and rising approximately 3-4 feet off the bottom in prior (H-1732a) depths of approximately 42 feet was found in Latitude 40°53'51.46"N, Longitude 73°43'04.59"W. This wreck was designated as contact 1731F. This boat is resting upside-down and is described as a relatively flat-bottomed power boat with no motor attached, light blue in color, and has very little marine growth on the hull. The identity of this boat could not be determined. A least depth of 37 feet(corrected for smooth tides) was obtained by pneumatic depth gauge. This wreck is not presently charted. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a least depth of 37 feet. No additional field work is recommended on this wreck.

AWOIS #16510

The position given in Chart Letter #1095 of 1986 was not investigated by this survey. ~~Therefore, this portion of AWOIS Item #1731 should not be considered resolved.~~ Do not concur. See Addendum to FE-29355 Evaluation Report.

3) AWOIS #1733, a charted dangerous submerged obstruction with a clearance depth of 34 feet in Latitude 40°53'58"N, Longitude 73°42'05"W originated with prior survey H-5078WD (1930) as an uninvestigated temporary hang at 34 feet. This item was searched for by side-scan sonar

and echo sounder. Side-scan sonar coverage of 400% was required and accomplished over the required search area. No unusual contacts or traces were found. The requirement for item disproval has been met for this item and it is considered disproved. It is recommended that the presently charted dangerous submerged obstruction be removed from the chart. No additional field work is recommended on this AWOIS item.

4) AWOIS #4386, a charted dangerous submerged obstruction with a clearance depth of 57 feet in Latitude 40°50'00"N, Longitude 73°46'18"W originated with prior survey FE-174WD (1960) as an uninvestigated hang at 58 feet. This item was investigated by side-scan sonar (200% coverage) and echo sounder search. No significant contacts or traces were found. This hang on FE-174WD appears to be a solid hang and not a temporary hang or a touch bottom. The bottom in this area is soft mud and it is possible that an obstruction could have settled below the mud line in the 26 years between the present and prior surveys. However, the criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area and only 200% side-scan sonar coverage was accomplished on this item. Therefore, this AWOIS Item is not considered disproved. It is recommended that this dangerous submerged obstruction, AWOIS Item #4386, be retained as presently charted. Additional field work is recommended to verify or disprove the existence of this item.

5) AWOIS #4387, a charted dangerous submerged obstruction with a clearance depth of 52 feet in Latitude 40°50'06.0"N, Longitude 73°46'12.6"W originated with Local Notice to Mariners No. 57 of 1959 as 900 tons of scrap iron sunk in about 68 feet of water on December 20, 1959. Chart Letter #9 of 1960 identified this item as barge loaded with metal shavings. Prior survey FE-174 (1960) hung the obstruction at 54 feet and cleared it at 52 feet. Metal shavings were found on the ground wire. This item was investigated by side-scan sonar (200% coverage) and echo sounder search. No significant contacts or traces were found. This hang on FE-174WD appears to be a solid hang and not a temporary hang or a touch bottom. The bottom in this area is soft mud and it possible that an obstruction could have settled below the mud line in the 26 years between the present and prior surveys, but the possibility of either 900 tons of scrap iron or a barge loaded with metal shavings to have settled below the mud line in 26 years seems remote. The criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area and only 200% side-scan sonar coverage was accomplished on this item. ~~Therefore, this AWOIS Item is not considered disproved. It is recommended that this dangerous submerged obstruction, AWOIS Item #4387, be retained as presently charted. Additional~~

~~field work is recommended to verify or disprove the existence of this item.~~ Do not concur. See Addendum to FE-293SS Evaluation Report.

6) AWOIS #4388, an uncharted submerged obstruction in Latitude 40°50'06.6"N, Longitude 73°46'15"W originated with prior survey FE-174WD (1960) as an uninvestigated hang at 61 feet and cleared by 54 feet. This obstruction is not charted due to its proximity to AWOIS #4387 which was cleared by 52 feet. This item was investigated by side-scan sonar (200% coverage) and echo sounder search. No significant contacts or traces were found. This hang on FE-174WD is only 50 meters northeast of the hang of AWOIS Item #4387 and considering the reported identity and probable size of AWOIS Item #4387, it is believed to be a hang on the same obstruction or wreck. The criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area and only 200% side-scan sonar coverage was accomplished on this item. ~~Therefore, this AWOIS Item is not considered disproved.~~ Dont concur. See Addendum to FE-293SS Evaluation Report. This item is not presently charted and is not recommended to be charted. It is recommended that this item be considered as part of AWOIS Item #4387 and not a separate obstruction.

7) AWOIS #4389, a charted dangerous submerged obstruction with a clearance depth of 54 feet in Latitude 40°50'16.8"N, Longitude 73°45'49.8"W originated with prior survey FE-174WD (1960) as an uninvestigated hang at 55 feet. This item was investigated by side-scan sonar (200% coverage) and echo sounder search. No significant contacts or traces were found. The criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area and only 200% side-scan sonar coverage was accomplished on this item. Therefore, this AWOIS Item is not considered disproved. It is recommended that this dangerous submerged obstruction, AWOIS Item #4389, be retained as presently charted. Additional field work is recommended to verify or disprove the existence of this item.

8) AWOIS #4396, a charted dangerous submerged obstruction with a least depth of 19 feet in Latitude 40°52'05.0"N, Longitude 73°40'57.5"W originated with prior survey H-5078WD (1930) and is identified as possibly an old spar or post. A steel spar 18 inches in diameter and rising (vertical, not sloping) 15 feet off the bottom in prior (H-5545) depths of 29-30 feet was found in Latitude 40°52'05.49"N, Longitude 73°40'59.17"W. This obstruction is further described as having a steel lifting eye on the top and could possibly be a spud from a dredge. Since this obstruction matches the described AWOIS Item both in description and position (within approximately 20 meters), it is considered to be AWOIS Item #4396. A least depth of 16 feet (corrected for smooth tides) was obtained by pneumatic depth gauge. It is recommended that this item be charted in the position determined by the present survey as

a dangerous submerged obstruction with a least depth of 16 feet. The presently charted dangerous submerged obstruction should be deleted from the chart. No additional field work is recommended on this AWOIS Item.

9) AWOIS #4397, a charted dangerous submerged obstruction with a least depth of 31 feet in Latitude 40°52'37.5"N, Longitude 73°41'48.6"W originated with prior survey H-5078WD (1930) as an uninvestigated grounding at 31 feet cleared by 29 feet. This item was investigated by side-scan sonar (200% coverage) and echo sounder search. Two significant contacts were found and investigated. Both contacts were found to be old wrecks. Neither of these wrecks are considered to be the AWOIS Item due to their distance from the item (contact 4397A is approximately 175 meters southwest of the item and contact 4397B is approximately 185 meters south-southwest of the item). This item on H-5078WD appears to be a grounding or a touch bottom and not a hang. On H-5078WD, soundings taken within the area indicate a grounding and the hydrographer listed it as a touch bottom and not a hang. The criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area and only 200% side-scan sonar coverage was accomplished. ~~Therefore, this AWOIS Item is not disproved.~~ In consideration of the source information (H-5078WD), it is doubtful that this AWOIS Item is an obstruction. ~~It is recommended that this item be retained as charted but with the notation: existence doubtful. Additional field work is recommended to verify or disprove the existence of this item.~~ The two contacts (wrecks) found during the investigation of this AWOIS Item are addressed as follows:

Do not concur. See Addendum to FE-2935S Evaluation Report.

a) The badly deteriorated remains of a wooden wreck, 5 meters in diameter and rising 3-5 feet off the bottom, was found in Latitude 40°52'33.59"N, Longitude 73°41'53.86"W. No identification could be made of this wreck due to the highly deteriorated condition. This wreck was designated as contact 4397A. This wreck lies in prior (H-5545) depths of 36-37 feet. A least depth of 34 feet (corrected for smooth tides) was obtained by pneumatic depth gauge. This wreck is in an area cleared by an effective depth of 30 feet by prior survey H-5078WD (1930) and was possibly in existence at the time of the survey. This wreck is not presently charted. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a least depth of 34 feet. No additional field work is recommended on this wreck.

Awois #6506

b) The badly deteriorated remains of a wreck (steel construction), 6-7 meters in length and two meters in width, was found in Latitude 40°52'32.21"N, Longitude 73°41'52.40"W. No identification could be made of this wreck due to the highly deteriorated condition. This wreck

Awois #6505

was designated as contact 4397B. This wreck lies in prior (H-5545) depths of 35-37 feet. A least depth of 34 feet (corrected for smooth tides) was obtained by pneumatic depth gauge. This wreck is in an area cleared by an effective depth of 30 feet by prior survey H-5078WD (1930) and was possibly in existence at the time of the survey. This wreck is not not presently charted. It is recommended that this wreck be charted in the position determined by the present survey as a dangerous sunken wreck with a least depth of 34 feet. No additional field work is recommended on this wreck.

10) AWOIS #4398, a charted dangerous submerged obstruction with a least depth of 23 feet in Latitude 40°52'46.5"N, Longitude 73°42'54.2"W originated with prior survey H-5078WD (1930) and is identified as wreckage. This item was investigated by side-scan sonar (400% coverage) and echo sounder search. The criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area and 400% side-scan sonar coverage was accomplished. The search area of this item is a boulder field and any wreckage would be difficult to identify due to the many large boulders. None of the contacts had the appearance of being a wreck or wreckage. The many large boulders or pinnacles, some rising above the irregular bottom by as much as 25 feet, are the most significant features in this area. Any wreckage which may exist would not be significant in comparison to the boulders. The topography of this area is poorly represented on the chart. The reconnaissance hydrography conducted during the investigation of this item is not suitable for charting. It is recommended that a hydrographic field examination be conducted of this area to accurately portray the bottom configuration and shoalest soundings. It is recommended that the charted dangerous submerged obstruction, AWOIS Item #4398, be revised to a rock with a depth of 23 feet on the chart. It is recommended that the notation "boulders" be charted in this area. The two pinnacles noted by the hydrographer in Appendix XII. of the Descriptive report are addressed as follows:

a) A significant contact rising 7.8 meters (25½ feet) in 42-foot depths, called a pinnacle by the hydrographer, was found at an INTAC computed position of Latitude 40°52'43.86"N, Longitude 73°42'59.90"W. This contact, which has a computed shoalest depth of 16½ feet, is approximately 40 meters northwest of a charted 18-foot shoal. The hydrographer did not recommend charting this contact due to the proximity of the 18-foot shoal. It is recommended that a 16-foot reported sounding, position approximate (±25 meters), be charted in the position determined by the INTAC system until adequate hydrography can be obtained in this area. This reported sounding is not smooth plotted.

b) A significant contact rising 5.5 meters (18 feet) in 46-foot depths, called a pinnacle by the hydrographer, was found at an INTAC computed position of Latitude 40°52'52.67"N, Longitude 73°42'57.19"W. This contact, which has a computed shoalest depth of 28 feet, is approximately 110 meters northwest of a charted 34-foot sounding. The hydrographer did not recommend charting this contact due to the proximity of the 34-foot sounding. It is recommended that a 28-foot reported sounding, position approximate (±25 meters), be charted in the position determined by the INTAC system until adequate hydrography can be obtained in this area. This reported sounding is not smooth plotted.

11) AWOIS #4400, a charted dangerous sunken wreck in Latitude 40°53'18"N, Longitude 73°40'36"W, position approximate, originated with Chart Letter #1286 of 1966 and is identified as a wreck that has been stripped by divers. This item was investigated by side-scan sonar (200% coverage) and echo sounder search. Several unusual contacts were found. A suspicious trace was noted on the echogram in Latitude 40°53'18.5"N, Longitude 73°40'38.7"W. This trace rises 5½ feet off the bottom and is approximately 35 meters in width. The hydrographer did not consider this a valid trace or contact as nothing was evident on the side-scan sonargrams and the low frequency trace on the echogram did not break and follow the high frequency trace. Several "donut shaped" contacts approximately 25-30 meters in diameter appear on the sonargrams. These contacts do not display acoustic shadowing and the echograms show a slight (½-foot) depression in the bottom. They appear to be sea bed texture changes. A prominent line of these contacts extend from Latitude 40°53'13"N, Longitude 73°40'43"W to Latitude 40°53'14"N, Longitude 73°40'37"W. These "donut shaped" contacts are not considered significant contacts. The criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area. Only 200% side-scan sonar coverage was accomplished. Therefore, this AWOIS Item is not considered disproved. It is recommended that this dangerous sunken wreck, AWOIS Item #4400, be retained as presently charted. Additional field work is recommended to verify or disprove the existence of this item and to investigate the suspicious traces and contacts found during this item investigation.

12) AWOIS #4416, a charted dangerous submerged rock with a cleared depth of 35 feet in Latitude 40°49'01.5"N, Longitude 73°46'55.0"W originated with prior survey H-5078WD (1930) as a hang at 40 feet, cleared by 35 feet, and is identified as boulders with a shoalest sounding of 38 feet. This item was investigated by side-scan sonar (200% coverage) and echo sounder search. A contact, indistinct and unidentifiable, was seen on side-scan sonar only once despite three passes within the scanning range. This

contact was found in Latitude 40°49'01.23"N, Longitude 73°46'55.48"W which is less than 10 meters south of the assigned AWOIS Item. The quality of the sonargram for this item is not sufficient for item disproval, regardless of the coverage. Echo sounder development did locate this contact which rises 5-6 feet above the bottom. A shoalest sounding of 45 feet (corrected for TRA, velocity, and smooth tides) was obtained by echo sounder. Constant tension launch wire drag hung this contact at 43 feet and cleared it in two directions by 41 feet. The area covered by constant tension launch wire drag does not cover the entire required search area. The constant tension wire drag clearances may not be valid if this contact is a rocky shoal since a rocky shoal may be sloping and the ground wire could possibly slip over the shoal instead of hanging. This contact is unidentified since the data is not sufficient to assume it to be a rock or a rocky shoal. The criteria for item disproval has not been met. Therefore, this AWOIS Item is not considered disproved. It is recommended that this dangerous submerged rock cleared by 35 feet, AWOIS Item #4416, be retained as presently charted. Additional field work is recommended to verify or disprove the existence of this AWOIS Item.

13) AWOIS #4417, a charted dangerous submerged rock with a cleared depth of 32 feet in Latitude 40°49'59.0"N, Longitude 73°46'46.5"W originated with prior survey H-5078WD (1930) as a hang at 38 feet, cleared by 32 feet, with a shoalest sounding of 33 feet, and is identified as a small rocky area ,pyramidal in shape, approximately 10 to 15 meters at the base. This item was investigated by side-scan sonar (200% coverage), echo sounder search, and constant tension launch wire drag. A rocky shoal was found by the present survey in Latitude 40°49'58.97"N, Longitude 73°46'47.82"W. This rocky shoal was designated as contact #4417A. A shoalest sounding found of 37 feet (corrected for TRA, velocity, and smooth tides) was obtained by echo sounder. This rocky shoal is believed to be the item being sought, AWOIS Item #4417, since it is approximately 30 meters west of the 33-foot shoal sounding found by H-5078WD (1930). Constant tension launch wire drag hung this shoal at an effective depth of 37 feet and cleared it, in one direction only, by 36 feet. The criteria for item disproval by side-scan sonar is 400% coverage of the assigned search area and only 200% side-scan sonar coverage was accomplished and wire drag clearance in one direction only is not considered sufficient when it cannot be determined that the object hung is equally hangable in all directions. Therefore, this AWOIS Item is not considered disproved. It is recommended that the presently charted dangerous submerged rock with a wire drag clearance depth of 32 feet, AWOIS Item #4417, be retained as presently charted but in the position determined by the present survey. Additional field work is recommended to obtain the least depth on this rocky shoal. An uncharted shoal and an apparent wreck were

found during the investigation of AWOIS Item #4417 and are addressed as follows:

a) An uncharted rocky shoal was found by the present survey in Latitude 40°50'05.37"N, Longitude 73°46'44.75"W. This rocky shoal was designated as contact #4417B. A shoalest sounding of 51 feet (corrected for TRA, velocity, and smooth tides) was obtained by echo sounder. A hang depth of 48 feet and a clearance depth of 45 feet, in one direction only, was obtained on this rocky shoal by constant tension launch wire drag. Wire drag clearance in one direction only is not sufficient when it cannot be determined that the object hung is equally hangable in all directions. Prior survey H-5547 (1934) shows 57-foot depths within the common area with no indication of a rocky shoal. It is recommended that this rocky shoal be charted in the position determined by the present survey as a dangerous submerged rock with a wire drag clearance of 45 feet. Additional field work is recommended to obtain the least depth on this rocky shoal.

Awois #6500 ✓

b) A side-scan sonar contact having the appearance of being a sunken wreck was found in Latitude 40°50'07.5"N, Longitude 73°46'45.0"W, position approximate. As the investigations of AWOIS Items #4417 and #4418 overlapped, this contact also was found during the investigation of AWOIS Item #4418. This contact may possibly be a sunken barge as it is rectangular in appearance and what appears to be cargo holds or hatches are evident on the sonargram. Also a deep scour is evident on one side of this contact. No wrecks are charted in the area of this contact. This contact was neither identified nor investigated by the hydrographer. This contact lies in prior (H-5547) depths of 73-80 feet. The side-scan sonar acoustic image of this apparent wreck is good but is not considered sufficient to determine a reasonably reliable target height. Constant tension launch wire drag conducted to clear contact #4417B also cleared this apparent wreck in one direction only by an effective depth of 45 feet. It is recommended that this apparent wreck be charted in the approximate position determined by the present survey as a dangerous sunken wreck, position approximate (±50 meters), with a note in parentheses: (cleared 45 feet). Additional field work is recommended to verify or disprove this contact and, if found, identify and obtain an accurate position and least depth.

Awois #6501 ✓

14) AWOIS #4418, a charted dangerous submerged rock with a clearance depth of 25 feet in Latitude 40°50'12"N, Longitude 73°46'40"W originated with prior survey H-5078WD (1930) as a rocky shoal area, hung at 32 feet, cleared by 25 feet, and a shoalest sounding obtained of 27 feet. This rocky shoal, AWOIS Item #4418, was found by the present survey in Latitude 40°50'12.05"N, Longitude 73°46'40.65"W. ✓

This rocky shoal was designated as contact #4418A. A shoalest sounding of 25 feet (corrected for TRA, velocity, and smooth tides) was obtained by echo sounder. The constant tension launch wire drag conducted on this item was disregarded since the clearance depth was deeper than the shoalest sounding by echo sounder. It is believed that the clearance strip wire slipped over the shoal instead of hanging it due to the sloping nature of shoals. It is recommended that this rocky shoal be charted in the position determined by the present survey as a 25-foot sounding on a dangerous submerged rock. The presently charted 25-foot wire drag clearance over a rock should be deleted from the chart. Additional field work is not recommended. An uncharted shoal and two apparent wrecks were found during the investigation of of AWOIS Item #4418 and are addressed as follows:

a) An uncharted rocky shoal was found by the present survey in Latitude 40°50'09.74"N, Longitude 73°46'37.87"W. This rocky shoal was designated as contact #4418B. A shoalest sounding of 28 feet (corrected for TRA, velocity, and smooth tides) was obtained by echo sounder. The constant tension launch wire drag conducted on this item was disregarded and rejected by the field since the clearance depth was deeper than the shoalest sounding by echo sounder. It is believed that the clearance strip wire slipped over the shoal instead of hanging it due to the sloping nature of shoals. This shoal is in an area cleared by an effective depth of 32 feet by prior survey H-5078WD (1930). It is believed that the wire also slipped over the shoal during this prior wire drag survey. Prior survey H-5547 (1934) shows 45 to 53-foot depths within the common area with no indication of a rocky shoal. It is recommended that this rocky shoal be charted in the position determined by the present survey as a 28-foot sounding on a dangerous submerged rock. Additional field work is not recommended.

b) A side-scan sonar contact having the appearance of being a sunken wreck was found in Latitude 40°50'13.5"N, Longitude 73°46'45.5"W, position approximate. No wrecks are charted in the area of this contact. This contact was neither identified nor investigated by the hydrographer. This contact lies in prior (H-5547) depths of 60-71 feet. The side-scan sonar acoustic image of this apparent wreck is good but is not considered sufficient to determine a reasonably reliable target height. It is recommended that this apparent wreck be charted in the approximate position determined by the present survey as a dangerous sunken wreck, position approximate (±50 meters). Additional field work is recommended to verify or disprove this contact and, if found, identify and obtain an accurate position and least depth.

c) A side-scan sonar contact having the appearance of being a sunken wreck was found in Latitude 40°50'07.5"N, Longitude 73°46'45.0"W, position approximate. As the investigations of AWOIS Items #4418 and #4417 overlapped, this contact also was found during the investigation of AWOIS Item #4417. This contact is addressed under the discussion of AWOIS Item #4417, section 7.a.13)b) of this report.

AWOIS #6501

b. Aids To Navigation

Seven fixed aids to navigation are listed in the Descriptive Report (section F.,Appendix VI., and Appendix XII.). Only the four fixed aids to navigation used for control stations were verified. Positional data was not available to verify the stated locations of the remaining three fixed aids to navigation. Floating aids to navigation located by this survey are noted in section N. of the Descriptive Report. None of these floating aids to navigation were verified. It is recommended that these floating aids to navigation be charted in accordance with the most current available information.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions except as noted in this report.

9. ADDITIONAL FIELD WORK

This is an adequate side-scan sonar survey for the AWOIS Items resolved by this survey. Additional field work is addressed in section 7. of this report. In regard to additional field work, it is recommended that a Remote Operated Vehicle (ROV) be obtained and used for contact identification and least depth determination in areas where diving operations cannot be conducted due to hazardous conditions.

Maurice B. Hickson, III

Maurice B. Hickson, III
Cartographer
Modified and Limited Verification
of Field Data
Evaluation and Analysis

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF CHARTING AND GEODETIC SERVICES
ROCKVILLE, MARYLAND 20852

JUN 30 1988

MEMORANDUM FOR: Commander Russell C. Arnold, NOAA RCA
Chief, Hydrographic Surveys Branch, NCD

FROM: Lieutenant Commander Maureen R. Kenny, NOAA
Chief, Operations Section
Hydrographic Surveys Branch

SUBJECT: Addendum to FE-293SS Evaluation Report

An AWOIS and SURF check of FE-293SS has been performed. Due to the knowledge gained on the use of side scan sonar as an investigative tool since the system has been in use, a review was made which included a re-evaluation of the initial survey requirements designated in the AWOIS file. This review resulted in changes to side scan sonar survey requirements for certain AWOIS items, which in turn resulted in changes to item resolutions as stated in the evaluation report.

Results of this review follow. Discussions are limited to those AWOIS items in which changes and/or additions to the evaluation report are required.

AWOIS Item No. 1731

As stated in the evaluator's report, a wreck was found matching the described AWOIS item and is considered to be the AWOIS item. The shoalest depth obtained by echo sounder was 40 feet (least depth using a pneumatic depth gage was not possible). The evaluator accepts the hydrographer's least depth and position and recommends both be charted in lieu of the presently charted information. The recommendation for additional field work to obtain a wire-drag clearance depth over the wreck is not supported; the echo-sounder least depth has been accepted.

The position given in Chart Letter 1095 in 1986 was obtained from LORAN-C rates. Search radii given by the presurvey review process to this source is 700 meters based on the expected accuracy of LORAN-C positioning. The coal barge found by FE-293SS is within 500 meters of the chart letter position and is considered to be the wreck cited in the chart letter. No further work is required. This item is considered resolved.

AWOIS Item No. 4387

This item is 900 tons of scrap iron (a barge loaded with metal shavings). Iron has a high probability of detection using side scan sonar. Review of the search requirements for this item shows the initial requirement for 400-percent coverage to be in error; 200-percent coverage is sufficient. The field unit states that they accomplished 200-percent side scan sonar coverage and an echo-sounder investigation (15-meter line spacing) with no indications of the item or significant shoaling. This item is considered disproved. It is recommended that the dangerous submerged obstruction at latitude 40°50'06.0"N, longitude 73°46'12.6"W, be removed from the chart.

AWOIS Item No. 4388

The evaluator considers this item to be a part of AWOIS item no. 4387 due to their close proximity and the reported identity and probable size of item no. 4387 (concur). For the reasons stated under AWOIS item no. 4387, this item is considered disproved and should remain uncharted.

AWOIS Item No. 4397

Review of the search requirements for this item shows the initial requirement for a 75-meter search radius to be in error. As groundings are not precisely located, search radii of 200 meters are now routinely being assigned for wire drag groundings. Both wrecks found by the field fall within 200 meters of the original AWOIS position. No other objects were found with 200-percent side scan sonar coverage. This item is considered resolved; the charting of the two new wrecks as stated in the evaluation report will sufficiently show the danger in the area. It is recommended that the dangerous submerged obstruction charted at latitude 40°52'37.5"N, longitude 73°41'48.6"W, be revised to a sounding of 32 feet which originated with H-5078WD.

INSPECTION REPORT
FE-293SS

The completed survey has been inspected with regards to survey coverage, investigation of hangs and clearance depths, cartographic symbolization, and the verification or disproval of charted data. The side scan sonar data have been inspected to gain insight into its overall completeness regarding survey coverage, presentation of survey results, and the verification or disproval of charted data.

The survey, except as noted in the Evaluation Report, is considered completed and adequate to meet National Ocean Service standards. The survey records comply with NOS requirements except as noted in the Evaluation Report. Processing is considered complete.

Inspected

R. D. Sanocki
Chief, Hydrographic Surveys
Processing Section
Hydrographic Surveys Branch

William A. Wert, LCDR, NOAA
Chief, Hydrographic Surveys Branch

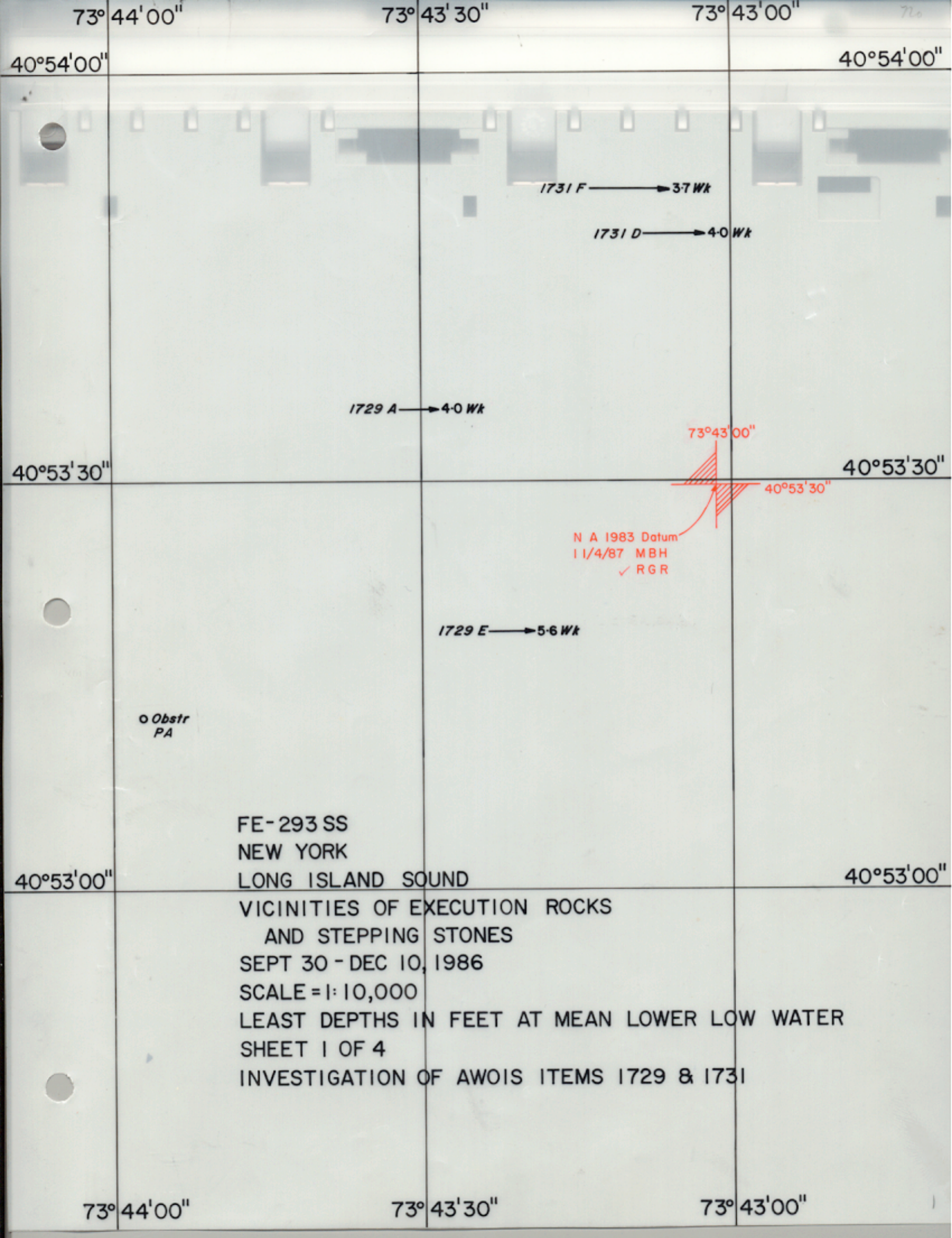
Approved September 25, 1987

Ray E. Moses, RADM, NOAA
Director, Atlantic Marine Center

ADDENDUM TO ACCOMPANY SURVEY FE-293WD

The average values for shifting surveyed NAD 1927 positions to NAD 1983 positions for this survey are as follows:

Position shifts (NAD 1983 minus NAD 1927):
Average Latitude shift = 0.359 seconds = 11.1 meters
Average Longitude shift = -1.522 seconds = -35.6 meters



FE-293 SS
NEW YORK
LONG ISLAND SOUND

VICINITIES OF EXECUTION ROCKS
AND STEPPING STONES
SEPT 30 - DEC 10, 1986
SCALE = 1:10,000
LEAST DEPTHS IN FEET AT MEAN LOWER LOW WATER
SHEET 1 OF 4
INVESTIGATION OF AWOIS ITEMS 1729 & 1731

73°47'30" 73°47'00" 73°46'30"

40°49'30" 40°49'30"

73°47'00"

40°49'30"

N A 1983 Datum
11/4/87 MBH
✓ RGR

4416
Hang at 43ft
Cleared by 41ft
Shoalest sounding 45ft (echo sounder)
Unidentified hang

40°49'00" 40°49'00"

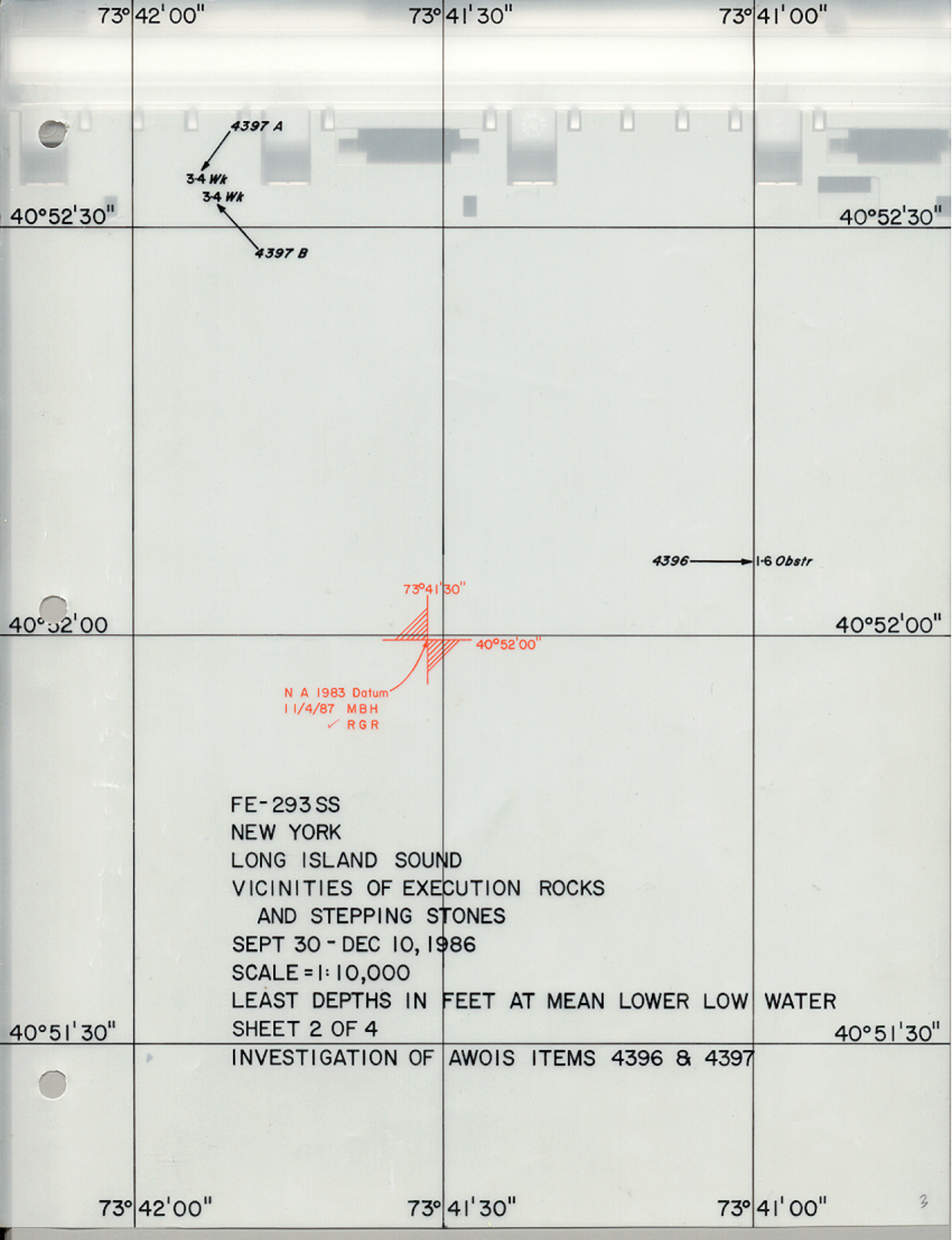
4-3

FE-293 SS
NEW YORK
LONG ISLAND SOUND
VICINITIES OF EXECUTION ROCKS
AND STEPPING STONES
SEPT 30 - DEC 10, 1986
SCALE = 1:10,000

40°48'30" 40°48'30"

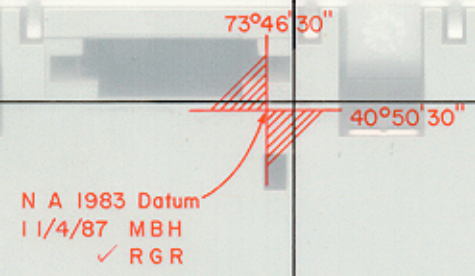
EFFECTIVE DEPTHS AND SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER
SHEET 3 OF 4
INVESTIGATION OF AWOIS ITEM 4416

73°47'30" 73°47°00" 73°46'30"


73° 42' 00"
73° 41' 30"
73° 41' 00"
40° 52' 30"
40° 52' 00"
40° 51' 30"
4397 A
3-4 Wk
3-4 Wk
4397 B
4396
1-6 Obstr
73° 41' 30"
40° 52' 00"
N A 1983 Datum
11/4/87 MBH
RGR
FE-293 SS
NEW YORK
LONG ISLAND SOUND
VICINITIES OF EXECUTION ROCKS
AND STEPPING STONES
SEPT 30 - DEC 10, 1986
SCALE = 1:10,000
LEAST DEPTHS IN FEET AT MEAN LOWER LOW WATER
SHEET 2 OF 4
INVESTIGATION OF AWOIS ITEMS 4396 & 4397

73°47'00" 73°46'30" 73°46'00"

40°50'30" 40°50'30"



4418 A

PA

25 Rk

4418 B

28 Rk

Cleared by 45 ft (one direction only)

PA

4417 B

48

Hang at 48 ft
Cleared by 45 ft (one direction only)
Shoalest sounding 51 ft (echo sounder)
Rocky shoal

40°50'00" 40°50'00"

37 Rk

4417 A

Hang at 37 ft
Cleared by 36 ft (one direction only)
Shoalest sounding 37 ft (echo sounder)
Rocky shoal

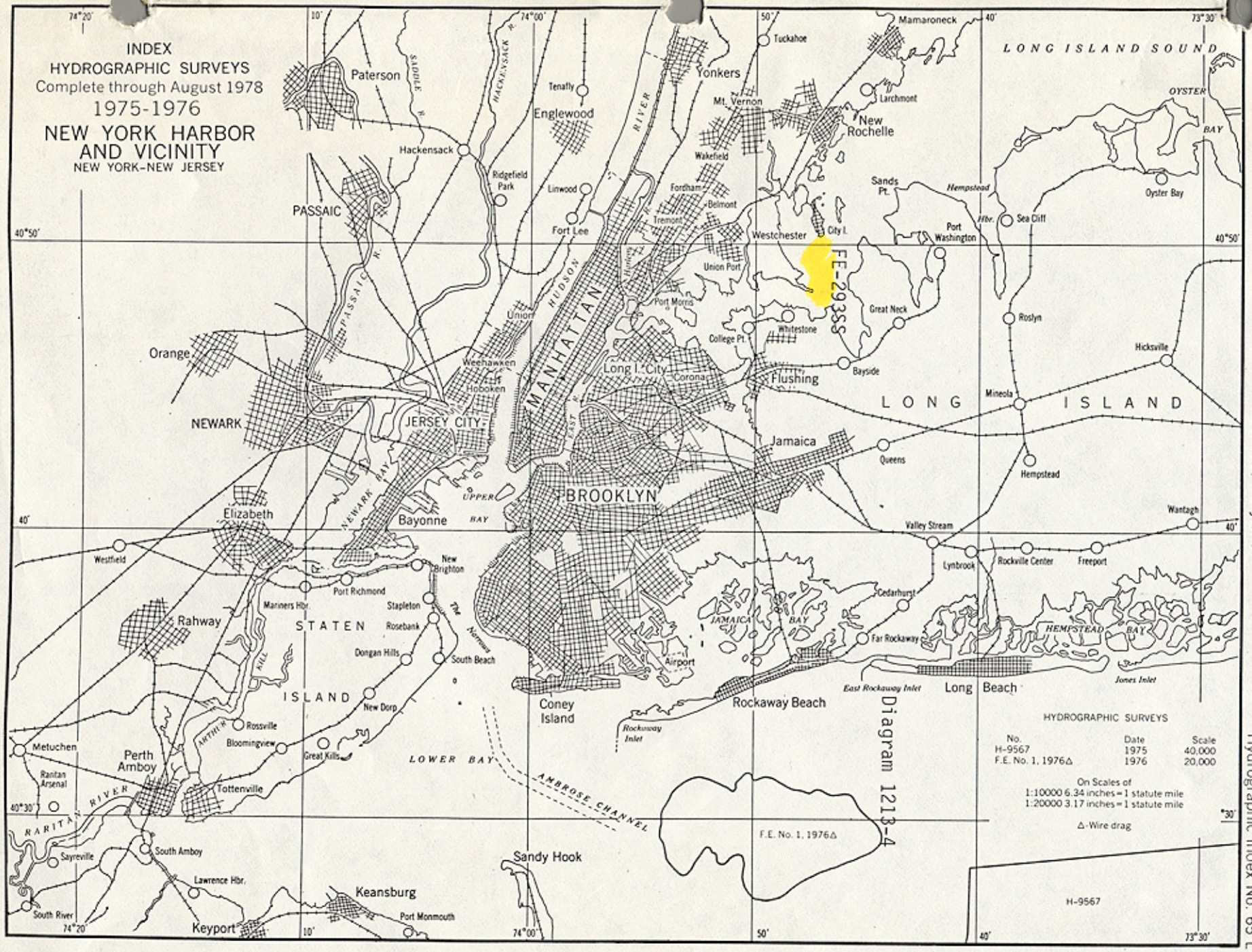
FE-293 SS
NEW YORK
LONG ISLAND SOUND
VICINITIES OF EXECUTION ROCKS
AND STEPPING STONES
SEPT 30 - DEC 10, 1986

40°49'30" 40°49'30"

SCALE = 1:10,000
EFFECTIVE DEPTHS AND SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER
SHEET 4 OF 4
INVESTIGATION OF AWOIS ITEMS 4417 & 4418

73°47'00" 73°46'30" 73°46'00"

4



DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 65 L

NOAA FORM 75-96
(10-83)

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-293SS

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
12367	3-29-90	Patrick Pioli	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 33
12364	4-17-90	John Pierce	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 26
12366	7-5-90	William H Harper	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 40
12363	2-26-91	John Pierce	Full ~~Part Before After~~ Marine Center Approval Signed Via
			Drawing No. 51
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED

Appd To Stds. 2-5-88 JBr